VOLUME LIV APRIL, 1898 No. 4

AMERICAN JOURNAL OF INSANITY

PRISON MEDICAL SERVICE.

BY HAMILTON D. WEY, M. D., ELMIRA, N. Y.,
Physician to the New York State Reformatory.

The increased interest attaching to corrective and punitive institutions, together with the studies made in later years as to crime-causes, and a more general recognition of the fact that punitive measures are of little or no value as deterrents to crime, have brought to notice, incidentally, a study of prison methods and the medical service in connection with institutions of the kind named. As can be readily understood, the duties of such medical officer are many and varied, and comprise much in addition to the routine practice of his profession. In addition to having charge of the hospital and giving ear and attention to the various complaints which are constantly being brought to his notice, the medical officer is held responsible for the general hygiene of the institution. He is supposed to practice preventive medicine as well as to prescribe for actual disease when it occurs; or in other words, in addition to being the medical attendant he exercises the functions of a health officer, and is expected to display that care and surveillance by which epidemics of contagious and infectious diseases may be prevented, or at least that such diseases may be confined within the least possible limits. In matters of medicine and surgery he has made upon him the demands which a general practitioner is called upon to meet, and suddenly, without warning, he may have upon his hands grave cases of surgery and almost the entire range of

ailments comprised within the category of medicine. In connection with the functions already named, he stands between the prisoner and the government, in that allegations of incapacity for this work or that on the part of the inmate are referred to him for his opinion. In this capacity he acts judicially and impersonally, simply considering, so far as the administration is concerned, whether the demands made upon the prisoner are reasonable and just and within his capacity to perform; and on the part of the prisoner, to determine whether he possesses capabilities for the proper and full performance of the task imposed upon him, so far as relates to his mental status, his physical condition, and the absence of disease and deformity. To meet the requirements of his position he must further and necessarily have a practical acquaintance with disorders of the mind and mental disease, that he may be able to decide whether a prisoner be responsible for his acts and amenable to discipline; and on the other hand, whether by reason of his mental status he be a subject for retirement from a penal institution to a hospital for insane criminals.

From the above it will be seen that the demands upon a prison physician are no less varied than those made upon a country practitioner whose ride embraces a broad extent of territory and who is compelled to practice in various lines of his profession. Considering all this, in many instances, under conditions prevailing here and there, the medical service of many institutions is not comprehensive enough, the medical appointment carries with it no professional prerogatives, and the results obtained are not what they should and otherwise would be. The reasons for this are twofold, both as relating to the incumbent of the office and also to the manner of his appointment; and in certain instances the low status accorded him in the institution in which he serves is responsible for a service within narrow lines. It not infrequently happens that the physician, instead of confining himself solely to his legitimate work (of which there is sufficient for occupation and study if he be alive to the responsibilities of his situation and the potentialities it affords for original investigation and research), is called upon to perform duties that are extra-professional and not germane to his calling and office. The mere practice of his profession, that is, the admin-

istration of drugs for this condition or that, the treatment of broken bones, the reduction of luxations in connection with the surgery of emergencies he may be called upon to perform at any moment occupy but a small portion of his time and should constitute but a fraction of the work in which he is engaged. He should, in addition, have a thorough knowledge of the mental condition of the men in the institution, should know that this man is an epileptic, another a neuropath or crank upon the border line, should possess a knowledge of the family history of this man or that, and should recognize the defective along neural lines and the degenerate with perverted tendencies who is as much a menace to himself as others. In order that he may creditably fill his office, and give due expression to his qualifications and a satisfactory performance of his duties, it follows that the most of his time should be required and can be fully taken up along lines already indicated. There are few places which offer a wider field for study and investigation than a penal institution with its vast wealth of material which can be studied under conditions more favorable and with less limitation than in almost any other place. While there are excellent medical men, students, well informed upon matters relating to criminology, who are engaged in prison work, they have not been able to give themselves unreservedly to their prison duties, and the results of their work, in consequence, have not been as great or their contributions to science as frequent as they should be, because the compensation attaching to such an office is not sufficiently great to induce a man who is deriving a good income from his profession to abandon general practice to become the medical officer of a penal institution, with a diminished income, and a knowledge of the fact that almost at any time, with a change of administration or as the result of unforeseen circumstances, he may be called upon to relinquish his place and pass out again into the outer world to commence anew the practice of medicine at the same point practically, as far as patronage is concerned (with the exception of accumulated knowledge), as when, fresh from college, he began his professional career.

The medical officer should have been a general practitioner for a number of years prior to entering upon prison work, not less than three years, five perhaps would be better, and his prac-

tice should have been of such a kind as to have brought him in contact with "all sorts and conditions of men," and conferred a knowledge of various social classes. Moreover, as he will be called upon from time to time to decide the question of the mental responsibility of a given person and his amenability or otherwise to discipline, it is incumbent that he bring to the performance of his duties a practical knowledge of insanity and of various morbid mental phenomena. To this end he should have had an actual experience in a hospital for the insane sufficiently long to enable him to acquire a knowledge of the various forms of insanity and to differentiate, with reasonable accuracy, fictitious mental disease. Further than this, he should have made a study of epilepsy, its immediate and remote effects, so that he may be able, in a given case, when called upon to determine whether alleged epileptic seizures are genuine or fictitious; and if the former, whether disqualification for certain duties exists, whether relating to mental operations or confined to handicraft alone. A change in physiognomy, in manner, or in the performance of task suggests to the medical officer mental change or impairment long before symptoms become so pronounced and unmistakable that the same are recognized and noted by non-professional observers. The withdrawal of such a man from the routine of prison life, an assignment to the hospital where, under better hygiene, more comfortable quarters, better nourishment, he can be under constant observation that perchance the symptoms of nervous disturbance may subside, or other manifestations of mental disease developing themselves may establish beyond all doubt the fact that the prisoner in question is a more suitable subject for a hospital for the insane of his class than for a correctional institution and its disciplinary regulations. No penal institution should attempt to care for, within its walls, those who become insane during incarceration; and the administration which countenances and the physician who attempts to treat in a prison hospital cases of insanity are assuming grave responsibility in undertaking to do what in the very order of events they have not the facilities for carrying out. All newcomers should be examined as soon after admission as possible, that a knowledge be gained of the state of mind of each individual, the mental peculiarities noted, as by so doing persons will fre-

quently be discovered who are scarcely amenable to prison discipline and who, if their mental condition had been taken cognizance of by the justice who passed sentence, would in all probability have either been discharged or held for examination as to condition of mind and consigned elsewhere than to a prison. And what has just been said equally applies to epileptics. It is surprising how many epileptics of low mental status are tried and sentenced who are scarcely responsible for their acts and whose counsel would have raised the plea of insanity due to epilepsy as a defense had the offense been a capital one instead of some trivial act against person or property, the magnitude of which was barely sufficient to constitute it a felony. Within the writer's experience there is not one case called to mind in which in felonies of a low order the plea of unsoundness of mind due to epilepsy or a post-epileptic condition has ever been raised as a defense; and he is acquainted with a number of instances in which such a defense might very properly have been made. A prison is an unfit and improper place for an epileptic, so far as concerns himself and his influence upon the prison at large. He cannot be held to the same responsibility and discipline as other prisoners by reason of his condition and the irritability of mind which may precede or follow an epileptic seizure. These facts are known and operate to produce a bad effect upon others. A few epileptics distributed here and there through a prison, having convulsions in the yard and shop, offer a suggestion to designing prisoners, from which they take a cue. The latter, being good observers, often succeed in having convulsions attended by the usual objective manifestations, which may, for a time at least, occasion the disciplinary officers trouble because of their inability to differentiate between disease and a fictitious manifestation of the same, while the physician is not always at hand to witness the explosion. The treatment of this unfortunate class demands that they be treated beyond prison walls under such conditions as will ensure their safety, provide for them work of such kinds as they are able to do—preferably out of doors—amid such surroundings as create interest in the work in hand, with a proper dietary, and under such restrictions as will prevent a repetition of their criminous acts.

As previously stated, the physician, as a qualification for office, should have been a general practitioner of medicine (or have had

a general hospital experience), and have been connected with a hospital for the insane before becoming eligible for appointment. In addition to this the status of his office should be so determined by law that in his department, in the performance of his direct and collateral duties, he may not be hampered or embarrassed by directors or heads of other departments, nor should a warden set his non-professional opinion against that of the medical officer in purely professional matters. It is inferred at least that having the status of this office definitely determined by statute will not interfere with the basic law governing the institution, and that the latter in its framing was not formed to conflict with the former. As it is as much the province of the physician to prevent disease as it is to cure, his recommendations made from time to time and based upon his actual knowledge of sanitary conditions prevailing throughout the institution, should receive prompt recognition in the correction of those evils of which he complains. A negligence or oversight on the part of the medical officer might easily cripple a prison through the advent of an epidemic of contagious disease and a consequent which might have been avoided through the alertness of the medical officer and the necessary support accorded him. He should not be called upon to perform other than professional duties. If the institution is one of any size opportunities for work will not be wanting, and he will have his time fully occupied if interested in his calling and studious. Indeed it is a question if the performance of extraneous duties be not derogatory to the dignity of a medical officer and impair his usefulness in professional lines. The picture of a physician in charge of a bureau of identification—taking weights and measures of prisoners upon admission and discharge, conducting a photograph gallery, and actively engaged in other lines, all of which duties could have been as acceptably performed by an employee at $35 to $40 per month and found, has long been carried in mind. For the proper keeping of hospital and other records the physician should be supplied with such clerical aid that his books may be fully and properly kept.

It is a matter of surprise and regret to note in widely separated places, scattered here and there throughout the country, especially in prisons of old construction, the hospital seems to have been an after-thought and this important department placed in

an obscure corner, ill-supplied with proper facilities and oftentimes, from a sanitary point of view, poorly adapted for the reception of the sick. The results obtained in such a hospital do not equal what might have been had the apartments contained more fresh air and sunshine, and furniture more comfortable and pleasing to the eye, together with better food served in a more attractive manner. The functions of a prison hospital in the treatment of manifest disease are only equalled by the opportunities it affords for the study of those inmates concerning whose sanity or nervous stability there is question. In the quietude of the hospital, withdrawn from the inflexible discipline of every-day life in the ranks, and in response to gentler amenities than characterize ordinary prison life, it is often possible to arrive at a recognition of mental defects and ill-defined delusions, or to plot upon the borderland the standing of a neuropath who from time to time has recurring nervous explosions. These can be much better studied in the prison hospital than in a cell, in which latter place delusions are oftentimes concealed and nervous manifestations are mistaken for surliness and sulks until such a time as they find expression in perhaps an aggravated assault and where, after violence has been committed, by a process of retrospection a diagnosis of insanity may be arrived at.

No good results can be expected, nor can a man be found for the position of prison physician, willing to devote his entire time to the work, while the tenure of office is uncertain and where, as in certain States, a change in the personnel of heads of departments in public institutions is dependent upon a yearly change of administration. In order to secure a medical man possessing the requisite qualifications it is necessary that he should know that his tenure of office depends upon something more than a recurring political upheaval. Just as he has succeeded in organizing his department upon a scientific basis, and has become thoroughly interested in his work, acquiring in some instances a general and in others a special knowledge of the men under him, so that he is broadly acquainted with personal peculiarities and idiosyncrasies, he should not be called upon to "resign" his office and retire in order to make way for one who stands in favor with an incoming administration and whose points of recommendation are his activities in behalf of the party in power.

A STUDY OF THE EXCRETION OF UREA AND URIC ACID IN MELANCHOLIA AND IN A CASE PRESENTING RECURRENT PERIODS OF CONFUSION AND DEPRESSION.

By CLEON MELVILLE HIBBARD, A. M., M. D., St. Louis, Mo.

Formerly House Officer, McLean Hospital, and late Assistant Resident Physician, South Department, Boston City Hospital.

(From the Laboratory of the McLean Hospital.)

This study of urea and uric acid excretion in melancholia is based upon work that was carried on in the McLean Hospital Laboratory during the years from 1891 to 1895.[1]

Historical Review.—A short review of the literature of this subject will give some idea of the work done by others and the results obtained. In this résumé attention is paid only to the amount of urine, specific gravity, urea and uric acid in melancholia.

Sutherland and Rigby[2] as long ago as 1845 state that the specific gravity of the urine in the insane ranges mostly between 1021 and 1030, and frequently exceeds 1030. They were also among the first, if not the earliest, to make observations on the urea and uric acid in the insane. In 40 cases of melancholia urea and uric acid were increased in 19.

[1] The chemical work was performed under the direction of the pathologist, Dr. Wm. Noyes, with the assistance of the medical internes, Drs. W. F. Sawyer, Follen Cabot, and C. B. Stevens, till February, 1893, when Dr. Noyes resigned. From July, 1893, to July, 1895, this laboratory work was done by the internes, Dr. H. P. Lovewell, and the writer; the latter during the first and last six months, and the former during the intervening year. Dr. Lovewell and the writer originally intended to bring these results together, but circumstances preventing, the former has kindly allowed the latter to use his analyses.

[2] Reviewed in Allgemeine Zeitschrift f. Psychiatrie, Bd. 3, 1846, p. 56.

Voppel,[3] on the other hand, found the urea diminished in the insane.

Selin[4] observes in melancholia that the quantity of urine, solids, urea and uric acid are diminished in the period of an aggravation of the symptoms.

Addison[5] concludes that the quantity of urine and urea, during the course of the "maniacal paroxysms" in melancholia, is less than the amounts excreted in an equal time in health; in chronic melancholia they are reduced below the mean, and sometimes to the minimum, of health.

Rabow[6] observes that the quantity of urine is markedly diminished, as is the urea, to a less extent, while the specific gravity is increased. In two cases of circular insanity he obtained the following results:

	Case I.		Case II.	
	Depression.	Exhilaration.	Depression.	Exhilaration.
Amt. in cc.....	500	1130	600	1900
Sp. Gr.....	1020	1013	1021	1014
Solids.....	23	35	29.4	62.7
Urea.....	12.3	13.5	14	30

Case I ate well during exhilaration and gradually gained 40 pounds. No note is made concerning food in Case II.

Lombroso speaks of both the specific gravity[7] and the urea[8] as being diminished.

Schäfer[9] studied the amount and the specific gravity of the urine in a case of circular insanity through two cycles. Below

[3] Reissner in a review of V.'s work (Allg. Zeit. f. Psych., Bd. 19, 1862, p. 500), says that the method used is bad, and that with it it is possible to find an absence of urea, which actually occurred. The same review criticises severely the results obtained by Sutherland and Rigby.

[4] Abstract in Allg. Zeit. f. Psych., Bd. 20, 1863, p. 600.

[5] "On the Urine of the Insane," Abstract in Journ. of Ment. Science, vol. 11, 1865, p. 262.

[6] Beitrag zur Kenntniss der Beschaffenheit des Harns bei Geisteskranken. Arch. f. Psych., Bd. 7, 1877, p. 62.

[7] Quoted in Krafft-Ebing's Lehrbuch der Psychiatrie, 5th Ed., 1893, p. 137.

[8] Quoted by Rabow, loc. cit. p. 64.

[9] Ein Fall von circulärer Geistesstörung. Neurolog. Centralblatt, Bd. I, p. 201.

is the average of his results, to which are appended the calculated solids.[10]

	Case I.		Case II.	
	Depression.	Exhilaration.	Depression.	Exhilaration.
Amt. in cc.....	736	1850	500	1345
Sp. Gr.....	1031.7	1023.7	1032.7	1023.8
Solids.....	54.9	103.4	38.4	75.3

Lange,[11] of Copenhagen, connects mental depression and the uric acid diathesis, and on that basis he claims to treat this depression successfully by a diminution of meat diet and certain rules as to exercise.

Smyth[12] finds that the urea excreted in melancholia is almost equal to that in health. Uric acid is increased. He used Haycraft's method for uric acid, which, according to many observers, is faulty and regularly gives high results.[13] Again, his figures hardly seem to justify the above conclusion concerning uric acid, since he obtained 1.8 of uric acid in melancholia, and the same amount in his second series of healthy men; however, it is true if we compare only his normal series, which is 0.9 (page 517).

Mabille and Lallemant[14] claim that in those cases of insanity in which the ascendants suffer from gout, arthritis, and diabetes, or in which the patient is subject to a diathesis himself, they find an increase of uric acid over urea. These cases are sometimes mania, but mostly melancholia. They have periods of remission, in which they seem well. Their urine is dense, the nitrogen is diminished, and the uric acid is sometimes normal and sometimes greatly diminished.

One of the articles which called attention to the possible connection of uric acid and some forms of mental disease and which led to the carrying out of these observations as tests of such relationship, was a paper by Haig, which appeared in the spring

[10] After Häser's method.

[11] Quoted by Haig in *Brain*, vol. 14, 1891, p. 74.

[12] An Inquiry into the Blood and Urine of the Insane, Journ. of Ment. Sci., vol. 36, 1890, p. 504.

[13] Hermann, Czapek, Herter and Smith, Salkowski, Hammerton, and others.

[14] Quoted by Régis and Chevalier-Lavaure in Des Auto-Intoxications dans les Maladies Mentales. Congrès des Medicins Alienistes des Pays de Langue Française, La Rochelle, 1893, p. 13.

number of *Brain*, 1891, on "Uric Acid in Diseases of the Nervous System." The part which is of interest to us here is that which has to do with mental depression. On page 68 he says: "For in addition to my own experience that mental depression accompanied the uric acid headache, it was observed by myself and others that the period of headache and mental depression was often closely preceded by a period of mental exaltation and well-being, but I have mentioned above that the excretion of uric acid is diminished before the headache; therefore the mental condition varies directly with the relative amount of uric acid in the urine, and I was not long in putting this point to the same tests I had used in the case of headache, and I published a paper on 'Mental Depression and the Excretion of Uric Acid' in the *Practitioner*, November, 1888." The communication last referred to consists mostly of a theoretical discussion of uric acid as being a probable cause in some cases of temporary depression, the writer giving as the basis for such a conclusion the analysis of his own urine with that of a few other cases. He found an increased amount of uric acid in relation to urea, and from this he drew the above conclusion. However, it is just to Haig to say that he remarks, "when depression lasts for days and weeks without intermission, it is probably not due to uric acid." The *modus operandi* of the uric acid in producing mental depression is, according to Haig, by contracting the blood-vessels in the brain.[15] The value of Haig's work as a whole is lowered, since, as said above, "there is a doubt as to the applicability of Haycraft's method to urine."[16] Again, one can hardly help being skeptical of an hypothesis which tries to explain everything by uric-acidaemia, from Raynaud's disease[17] to the "bias of women towards religion."[18]

Marzocchi's[19] conclusions are as follows: "(1) In some forms

[15] *Brain*, XIV, p. 81.

[16] Halliburton, Text-Book of Chemical Physiology and Pathology, 1890, p. 808.

[17] Uric Acid, 2d ed., 1894, p. 201.

[18] Idem, p. 154.

[19] Marzocchi, L'Acido Urico nelle Forme di Depressione Mentale. Rivista Sperimentale di Freniatria e di Medicina Legale, 1892, vol. XVIII, Fascic. II, p. 330.

of melancholia there occurs an increase, absolute and relative, of the uric acid in the blood. (2) It is not probable that such an increase is a simple effect of the morbid process, on account of the depressive influence on the psychical functions of the uric acid.[20] (3) Even if one does not wish to give to uric acid the value of a factor, one can consider it the cause of an aggravation of the morbid process." When an inquiry is made as to how he arrived at such a conclusion these objections seem patent: (a) The 24-hour amount of urine was not used. This is of vital importance, since there is physiologically a great variation at different times of the day.[21] (b) Observations are too few—only 18—which are divided between 7 cases. (c) His method (Heintz's) is notoriously unreliable. (d) The statement as to the uric acid in the blood is assumed on the basis of urinary tests.

Babcock[22] finds that the specific gravity is above normal. He also speaks of the excess of urates, using only the murexid test, which is too rough to base any conclusions on.

Régis[23] says that urea is sometimes below the normal in melancholia.

Dagonet[24] remarks that the amounts of urine and urea are diminished in the depression, especially in melancholia.

Stefani,[25] in analyses of 60 cases, some of which extended over several months, observes: "In acute psychoses with a short course there is a decided increase in the specific gravity (1040 and more), which diminishes with convalescence, and rises again with a relapse in the condition. In some cases the curve of the specific gravity showed such a parallelism with the course of the disease that it could be compared to the temperature curves of

[20] He assumes that Haig has proved that uric acid causes mental depression.

[21] Sir W. Roberts, On the Daily Change of the Urine, Edinburgh Medical Journal, vol. V, 1860, pp. 817 and 906.

[22] A Study of the Urinalyses of 110 Cases of Insanity, Med. & Surg. Rep. (Phil.), vol. LXXX, 1894, p. 126.

[23] Practical Manual of Mental Medicine, translated by H. M. Bannister, M. D., p. 102. Utica, N. Y., 1894.

[24] Traité des Maladies Mentales, p. 101. Paris, 1894.

[25] Sul peso specifico dell orina nelle malattie mentale. Rivista Sperimentale di Freniatria e di Medicina Legale, vol. XX, Fascic. I, 1894, p. 1.

some acute disease. When a disease became chronic the specific gravity fell to normal after irregular oscillations. The body weight in most cases varied inversely with the specific gravity."

Summary of the conclusions of others.—In melancholia all agree that the amount of urine is diminished; and all, excepting Lombroso, that the specific gravity is increased. Urea is found lessened by eight out of ten observers. Uric acid was studied by four writers; an absolute increase was reported by two,[26] the other two obtain it at times above, and then again below normal. Besides these four, two claim that the uric acid is increased in relation to urea.

The methods used were those recommended by Professors E. S. Wood and W. B. Hills, of Harvard Medical School, as the tests that were practicable and at the same time trustworthy. These have been used throughout the entire observations, no change being made for newer and perhaps more accurate methods, since it was desirable to have the whole work comparable with itself.

Urea.—The hypobromite method for urea was used by means of the instrument devised by Doremus[27] of New York. This is a very simple and easily performed test. Although the result is only approximate, the error is small, and it answers the purpose very well, inasmuch as the urea is in comparatively large amounts. In some experiments as to its accuracy with known solutions of urea I find that the calculated amount is rather less than it should be, namely, an average difference of less than 8 per cent.[28] This is a constant error in all the observations, so that the results are comparable with themselves, and the figures given are those obtained by this method uncorrected. This change would lower somewhat the ratio of uric acid to urea.

[26] Smyth, Sutherland and Rigby. The same men are the only ones who find urea increased.

[27] C. W. Purdy, Practical Urinalysis and Urinary Diagnosis. 1894, p. 28.

[28] Parallel tests with this method give practically the same results, frequently giving the same amount. The probable error, due to technique, of this method is less than five per cent. It should be added that very often two tests were made, and if there was any difference, the mean was taken.

Uric Acid.—For the analysis of uric acid Salkowski's modification of Fokker's method was used.[29]

Pott[30] made comparative tests in 3 pathological and in 5 healthy cases with the above method, and with Ludwig-Salkowski silver method, and found in the greatest variation a difference of not more than — 3.17 per cent. to + 3.03 per cent.

The accuracy of this method was tested by doing parallels on eleven different urines—see Table No. 1—with the result of an average difference of 0.0052 grm., and a maximum difference of 0.0138 in 200 cc., and an average of 0.0307, and a maximum of 0.0993 in the 24-hours amount. This makes an average difference in the ratio of uric acid to urea of less than 2, and a maximum of 4. So that the probable error due to variation in the technique of the method itself is ± 4 per cent. (i. e., the average difference in 200 cc.—0.0052—divided by the average amount of uric acid in 200 cc.—0.1293—equals 4 per cent.

Some difficulty was encountered at the beginning of these studies in collecting the urine of some of the female patients—some being lost with the faeces. This was overcome by the use of a chair devised by Dr. Cowles, which had two apartments and was so adjusted that it divided the perineum. In this manner no urine was lost. The chair was used in the cases under observation whenever it was necessary.

[29] It is as follows: 200 cc. of urine made strongly alkaline by adding about 10 cc. of a saturated solution of sodium carbonate. To this 20 cc. of saturated solution of ammonium chloride is added after an hour. The mixture is then put in a refrigerator for 48 hours, the precipitate is collected on a weighed filter, and is then washed once with distilled water. After this the end of the funnel is corked, and dilute hydrochloric acid (1 to 10) is allowed to stand in the filter for 6 hours or more. The cork is removed and the filter is washed once with distilled water, then with alcohol, till all acid reaction disappears. The filter is allowed to dry for two or three days at the room temperature and is then weighed. To the difference in weight of the estimated uric acid, 0.03 gram is added. This gives the uric acid in 200 cc. of the urine, and from this the total uric acid is calculated. (Halliburton, Text-book of Chem. and Phys. Path., p. 808, 1890.)

[30] Neubauer und Vogel, Analyse des Harns, Neunte Auflage, 1890, p. 545.

PARALLEL OBSERVATIONS ON URIC ACID.

No.	Case.	Date.	Amount in 24 hours.	Urea.	Uric Acid.		Ratio. $\frac{-}{U} : \frac{+}{U}$.	Difference in 200 cc.	Difference in 24 hours. Amount.	Difference in Ratio.
					In 200 cc.	Total.				
1	Mr. B. H.	Nov. 8.	800	29.60	.1220	.4880	1 : 61			
	" "	" "	"	"	.1242	.4968	1 : 59	.0022	.0088	2
2	" "	Nov. 10.	600	17.40	.2742	.8226	1 : 21			
	" "	" "	"	"	.2841	.8523	1 : 20	.0099	.0297	1
3	" "	Nov. 13.	1470	20.81	.1430	1.0510	1 : 27			
	" "	" "	"	"	.1328	.9761	1 : 29	.0102	.0759	2
4	" "	Nov. 15.	1800	30.78	.0944	.8496	1 : 36			
	" "	" "	"	"	.0925	.8325	1 : 37	.0019	.0171	1
5	" "	Nov. 17.	880	13.85	.1535	.6754	1 : 20			
	" "	" "	"	"	.1520	.6688	1 : 20	.0015	.0066	0
6	" "	Nov. 19.	1440	18.72	.1188	.8553	1 : 22			
	" "	" "	"	"	.1050	.7560	1 : 26	.0138	.0993	4
7	Mrs. L. H.	Nov. 9.	970	18.43	.1008	.4888	1 : 38			
	" "	" "	"	"	.1009	.4894	1 : 37	.0001	.0006	0
8	" "	Nov. 11.	1200	26.76	.1108	.6648	1 : 40			
	" "	" "	"	"	.1038	.6228	1 : 43	.0070	.0420	3
9	" "	Nov. 12.	1060	20.14	.1143	.6058	1 : 33			
	" "	" "	"	"	.1113	.5900	1 : 34	.0030	.0158	1
10	" "	Nov. 14.	1020	17.95	.0994	.5069	1 : 35			
	" "	" "	"	"	.0937	.4774	1 : 37	.0057	.0295	2
11	" "	Nov. 16.	1200	23.04	.1132	.6792	1 : 34			
	" "	" "	"	"	.1112	.6672	1 : 34	.0020	.0120	0
	Averages ...	....	....	....	.1293	....	....	.0052	.0307	1.4

NORMAL URINES OF MALES.

No.	Date.	Amt. of Ur.	Spec. Gr.	Solids.	Urea.	Uric Acid.	$\frac{-}{U} : \frac{+}{U}$.
1	Sept. 11/93	1008	1.027	64.55	23.52	0.6811	1 : 35
2	Oct. 27/93	1500	1.014	49.40	27.31	0.7553	1 : 36
3	Oct. 10/93	870	1.025	50.55	25.07	0.6860	1 : 36
4	" "	852	1.028	55.98	25.39	0.6915	1 : 37
5	Oct. 24/94	1686	....	....	31.64	1.0259	1 : 31
6	Dec. 11/94	1050	1.026	63.61	31.50	1.0673	1 : 29
7	Dec. 17/94	1120	1.027	70.46	30.69	1.0618	1 : 29
8	Dec. 21/94	1400	1.027	88.07	38.64	0.9520	1 : 40
9	" "	1240	1.021	60.07	22.32	0.8227	1 : 27
10	Dec. 22/94	1380	1.023	73.95	37.26	1.1026	1 : 34
Average.....		1211	1.024	64.07	29.33	0.8846	1 : 33

NORMAL URINES OF FEMALES.

1	Dec. 21/94	980	1.021	47.95	25.48	0.5464	1 : 47
2	" "	880	1.026	53.31	23.76	1.0292	1 : 23
3	" "	1440	1.013	43.62	16.99	0.4860	1 : 35
4	Dec. 23/94	930	1.026	56.34	18.41	0.6677	1 : 28
5	Dec. 24/94	730	1.036	54.23	24.01	0.7702	1 : 31
6	Jan. 1/95	1080	1.015	35.23	32.94	0.8866	1 : 37
7	" "	940	1.020	43.80	19.83	0.7195	1 : 28
8	" "	1130	1.021	55.29	21.47	0.6910	1 : 31
9	" "	660	1.031	47.67	18.81	0.6042	1 : 31
10	" "	1043	1.023	45.33	24.94	0.7249	1 : 34
Average.....		981	1.023	52.57	22.77	0.7136	1 : 32

Table II gives the analysis of 20 normal urines of 10 male and of 10 female individuals.

The results obtained are practically the same as those of other observers,[31] the females giving lower results, which is what has been found by those who have investigated this question. It should be added that some of the latter urines were obtained from nurses who were doing night duty, and that many eat a smaller amount of food under these circumstances than they would otherwise; so we may say that our normal for women is rather low. The ratio of uric acid in healthy men is between 1:27 to 1:40; in women between 1:23 to 1:47; while the averages are 1:33 and 1:32, or when corrected, for the constant lessened amount of urea 1:36 and 1:35, respectively, for men and women. Although this is a somewhat higher ratio than some observers find, yet we feel that a comparison of the result obtained in melancholia with this normal is justifiable, and will not give faulty conclusions, since both the normal and the cases re-

[31]

	MEN.			WOMEN.		
Observers.	Urea.	Uric Acid.	$\frac{-}{U} : \frac{+}{U}$.	Urea.	Uric Acid.	$\frac{-}{U} : \frac{+}{U}$.
Yvon and Berlioz*....	26.52	0.596	1 : 44	20.61	0.556	1 : 37
Mosler*.....	36.20	..	..	25.79		
Parkes†.....	34.00	..	..	26.00		
Camerer‡.....	..	..	1 : 31			
Waller§.....	30.00	0.750	1 : 40			
Herter and Smith‖....	25. to 40.	0.50 to 0.75	1:45 to 1:65			
Vogel*.....	35.00	0.75	1 : 45			
Kerner*.....	38.00	0.94	1 : 40			
Haig¶.....	..	..	1 : 35			

* H. Vierordt, Daten und Tabellen für Mediciner, Zweite Auflage, 1892, pp. 222 and 223.

† Quoted by Addison, Journal of Mental Science, vol. XI, 1865, p. 264.

‡ Neubauer und Vogel, Analyse des Harns, Neunte Auflage, Zweiter Theil, 1890, p. 239.

§ Human Physiology, 1891, p. 227.

‖ N. Y. Medical Journal, June 4th, 1892.

¶ Uric Acid, 2nd ed., 1894.

ported here were done by the same method, and whatever errors may be present are common.

Von Noorden, in his book, Pathologie des Stoffwechsels,[32] has called attention to the great variation between the uric acid and the total nitrogen in the urine of healthy persons, and to the fact that individuals seem to have a ratio peculiar to themselves, which is remarkably persistent in its constancy in the same person under various dietary conditions; and, again, that on the whole the ratio decreases as the total nitrogen increases.

In the following pages the results of some thousand analyses of urine in ten different cases of melancholia are given. Attention is paid to the amount of urine and solids, to the specific gravity, but more particularly to the amount of urea and uric acid secreted, to the ratio between these two constituents, and when it was possible, to the relation which existed between the approximate nitrogen intake and the nitrogen output.

Case I. L. A. H. Female, aged 67. Admitted to McLean Hospital January 31, 1892. No heredity. Had an attack of melancholia at 45; recovered after several months. This illness was soon after the death of her husband. In the 22 years since, she has had a number of light and short attacks, and it has been customary for her to be depressed each spring. Condition on admission: thinks she is a very wicked woman, has committed the unpardonable sin, and that she is about to die an awful death. During March she became extremely agitated; would bite her arms and hands. In April became more comfortable, and at the end of the month had given up some of her delusions. During May continued to improve steadily till she was well mentally. Went home June 1, "recovered."

Second admission July 13, 1893. Was well during the past year, excepting a period of depression of a week in the spring. This attack began with sleeplessness and indigestion; afraid she will injure herself. Thinks she is possessed with the devil. During July she grew gradually worse, and in August and September she was much agitated, biting her arms; suicidal. She then improved some and became worse again in February. From then on she improved to a certain point, where she could control herself more, but the delusion still continued.

Discussion.—First attack. The amount of urine during the whole observation was not abnormal. The solids varied but little, and were practically normal. The urea was low, but rose from 14.8 to 18.5. The uric acid was within normal limits, falling

[32] Berlin, 1893, p. 54.

from 0.65 to 0.56. The ratio of uric acid to urea varied from 1:23 to 1:33. She gained in the first month under observation 4½ pounds, and then the weight remained stationary.

The above results seem as if there was some relation between the course of the disease and the amount of uric acid, and the ratio between it and urea, for as the ratio became less the patient improved, yet the amount of uric acid was never outside of the normal.

Second attack. The tables below give a condensation of 500 observations by monthly periods, and the notes in this case will be in reference to those periods, since the daily chart is so long that it is confusing to follow it.

The amount of urine varied between 720 and 1178 cc., averaging 952. The solids during the first four months were about 39; from November, 1893, to January, 1894, about 50; from then to August, 35; from this date to the end of the observations, near 40; averaging for the whole time 40. The urea throughout is diminished, averaging only 16; from July, 1893, to November, 1893, there was a gradual rise to 24. In October, November and December she was better. This was followed by a gradual fall to 13.60 in February, 1894, when she was worse. From then to the end the urea varied between that figure and 16.10. The uric acid averaged 0.50, and varied little from this. The ratio of uric acid to urea for the whole series is 1:32. The variation in the ratio corresponds, for the most part, with the change in the urea curve. From 1:27 at the beginning it fell to 1:45 in December, 1893, rising during the next three months to 1:30. It fell again to 1:34 in April and May, 1893, then gradually rising to 1:25.

In some cases records of the diet are kept in this hospital. This is done by putting down the number of slices of bread, the number of ounces of milk, and as nearly as possible the quantity of the various other articles of diet. Having such data in five of our cases, estimates of the proteids were made on the assumption that in a hospital like this, where the same person serves the food, about the same amount of oatmeal would be contained in a dish, that a slice of bread, etc., would weigh about the same from day to day, so that by finding out what an average piece of meat weighed as served in the ward, and so on throughout the dietary, it would be possible to obtain a rough approximate value

of the amount of food a patient received each day. Then by calculating the proteids in each article of food, according to the tables of Prof. W. O. Atwater,[33] the daily amount of proteid taken was obtained, of course very approximately.

The proteids were calculated for 7 months from the beginning. They rose during the first four months from 60 to 119; then fell to 91 in the next three months, averaging for the whole period 94. It is to be regretted that the diet was not kept throughout 1894. However, the nurse reports that the patient ate about the same as in 1893. The body weight varied little from that on admission, and bore no relation to the intensity of the disease. The percentage of urea to proteid fell from 23 on admission to 16 in October, 1893, which is decidedly low. This is very interesting, inasmuch as she grew worse from the beginning, and during August and September was very ill mentally. In the following four months she was somewhat better, and the percentage rose to 22, 21 and 19. The patient ate for the most part very well, say 94 grams of proteid, and with that excreted very little nitrogenous matter, hence giving the low percentage above referred to.

The apparent relation between uric acid and the disease in the first attack is not seen in the second, since this element varied little, and not at all with the mental condition. However, the question of the relation of mental depression was thoroughly studied on a daily chart with negative results. It is curious that from the beginning up to December, 1893, the ratio of uric acid fell, and that she had reached a stage of improvement at this date from which there has been little change.

Case II. C. A. M. Admitted October 13, 1892. Aged 29. A woman of a nervous disposition, prone to worry. The death of a child in August, 1890, caused uncontrollable grief. The death of another child in November, 1890, was followed by "nervous depression." In July, 1892, she began to worry about impending danger; suspicious, and suicidal in talk. A week before her confinement, in August, she became much agitated. After delivery she was better. Hallucinations of varying character continued. A week before entrance she attempted suicide. During the rest of October she was not restless, but depressed, and ate well. In November took more notice of things. At times thought she was taking the sacrament when

[33] See Appleton's Annual Cyclopedia, 1881, vol. 6, p. 670. Same, 1883, vol. 8, p. 342.

she ate. The depression was less in December, and she would voluntarily begin conversation, but still had delusions about food. Discharged in March "much improved." Body weight October 14, 90 pounds, November 1, 93 pounds, and December 1, 100 pounds.

Discussion.—The amount of urine varies considerably, averaging 993 cc.; however, there is a tendency to increase some from the beginning to a higher level. The solids on the whole are diminished, the average being 39.38, yet at times the solids are normal. During the first half they are 34.9, and the last 40.7. The urea varies also considerably, averaging 17.88, which is decidedly low. In the first part it averaged 16.8, and the last 18.5. The uric acid, on the whole, follows the urea, the average being 0.47. The ratio of uric acid to urea varies between wide limits, being on an average 1 : 39. The proteids are fairly constant, changing little from the average: 89. The average percentage of urea to proteid taken in is 19. During the observation she gained 10 pounds, which may explain in part the low nitrogenous excretion, some of the proteid being stored up as body albumin, since she was in a debilitated condition on entrance. As the patient improved, the urea increased slightly, and the percentage of urea to proteid rose from 18.7 in the first half of the observation to 20.3 in the second half.

Case III. E. D. C. Female, aged 36. Admitted January 16, 1892. Some insanity in mother's family. She always had fair health; normal weight 112 to 125. In summer 1891 she lost considerable sleep on account of sickness in family, and worried a great deal. In August she was confined and nursed the baby for two months, became somewhat exhausted and depressed, having "gastric weakness," insomnia, and in September was apprehensive and agitated at times. She was brought to the hospital for fear of suicide. From January to August she was depressed, suffering at times from paraesthesia in limbs and pain in back and hips. During the later part of this period she became less depressed. This gradual improvement continued throughout the observations. In the spring following she became for a while rather more depressed. From May on she gained considerably, and by the end of July was discharged recovered. This is a case of rather mild melancholia, which made a slow recovery. The urinary analyses were made from October, 1892, to January, 1893.

Discussion.—The amount of urine is normal, averaging 1305 cc. And it also varies within normal limits and had a tendency to fall from August to the end of December. The specific gravity averages only 1014, and as a consequence the solids are low and they

vary comparatively little. The urea varies little, the average being 21.54. The uric acid follows roughly the urea. The average is 0.58. Both the urea and uric acid approach near our normal for women, which was said to be rather low. The ratio of uric acid to urea varies within somewhat wide limits; the average being 1 : 37. It shows a tendency to fall slightly in the latter half of the observations when improving. The proteid taken in is very constant, varying slightly from the average: 93. The percentage of urea to proteid consumed is 22 per cent. on an average, with a slight tendency to rise during the last half of the observation. The body weight varies only from 154 to 159 from August to January. In this case of mild melancholia in an individual having rather more adipose tissue than is normal to her, we find no marked change in the excretion of the urine in quantity, solids, urea and uric acid, although it is true that the last three elements are a little below the average normal. The comparison of the nitrogenous elimination with the proteid consumption shows the same phenomena as in Cases I and II to a less degree; namely, the percentage between the intake and output of nitrogen is 22 per cent.

Case IV. C. M. H. Female, aged 54. Admitted October 27, 1892. In the spring of 1891 she had neuralgia and dyspepsia. She was confined to bed for a time. She was better in October, 1891. She attempted suicide last January. She has been resistive and obstinate, wants to stay in a dark room; is easily disturbed; depressed. During the first month she slept little, three to four hours, and was in a hopeless state of mind, fearing that she would never get well, sitting up only a few hours a day. When under observation she remained about the same, doing only what was agreeable to her, making no effort to help herself, sleeping usually about four hours a night. About the middle of April she showed signs of improvement, so that by May 12 she went home. Weight 87 pounds on admission. From December to May weight varied between 91 and 93.

Discussion.—The amount of urine varies within quite wide limits, but is low, averaging 714 cc. The specific gravity averages 1022. The solids are diminished, the average being 36.38. The urea is, on the whole, diminished, being 15.88. There are periods in which it was higher than this average, as in the first part of January and February, while in the last of January it was quite low. The uric acid averages 0.28. The daily variation at times is somewhat large in both urea and uric acid. The average ratio of uric acid to urea is 1 : 56. The proteids were very con-

stant, varying little from the average: 50. This amount is a low diet for even an individual of 90 pounds, making only 1.1 gram of proteid per kilogram of body weight. It is interesting to note that Parkes[34] gives exactly this figure for a subsistence diet at rest. The average percentage of urea to proteid is 31 per cent.

What is entirely different in this case from the others in which we have had diet records to make such a study, is that the solids, urea and uric acid are not diminished relatively. This is further evident, since she lived on a subsistence diet and did not lose weight. The low ratio of uric acid to urea falls outside of what has been observed in most of our cases, yet no significance is to be attached to it, as such exceptions occur in health, a low ratio being a peculiarity of certain individuals.

Case V. A. M. B. Female, aged 63. Admitted January 31, 1893. When 39 she was melancholy for a month after the drowning of her son. She had influenza a year ago last fall, and the second time three months ago. After the last illness she began to be depressed, seclusive; had delusions of persecutions; agitated till two weeks before admission; during this last fortnight was in a state of stupor. Attempted suicide. In February had to be fed. During the next five months, from March to last of July, she ate little, only enough to hold her strength. Her mental condition: depressed and deluded; would stand around in the halls; talked very little. The observations were made during this period. However, in July she gradually grew worse, and by the end of July it was impossible to obtain the 24 hours amount of urine. Her weight rose from 92½ pounds June 1, to 95½ July 1, and fell in July to 83 pounds.

Discussion.—The amount of urine is remarkably low, averaging only 450 cc., varying between 250 and 900; however, these are exceptionally low and high, for the variation is very little throughout the course of observation. The solids are diminished, averaging only 23.80. The urea vibrates between 4 and 20, being on an average 10.48. The average for June is 10.4, for July 9.49. This is interesting, as in July the patient grew worse, and more so as the uric acid remains about the same, being 0.318 and 0.31, thus making the ratio for June 1:33 and July 1:30. This increase of the ratio along with the diminution of the total nitrogen seems to be a normal tendency (V. Noorden).[35] The uric acid varies between 0.15 and 0.55, averaging 0.31. The average ratio between uric acid and urea is 1:32.

[34] Parkes' Practical Hygiene, vol. 2, American ed., 1884, p. 211.
[35] Op. cit. p. 54.

Case VI. E. G. F. Female, aged 74. Admitted September 13, 1891. She has had three attacks of melancholia, eight, four and two years ago. She recovered from each, but the duration of the attack was longer each time. She is depressed, easily disturbed, has some delusions of persecution, sleeps poorly. From July to December, 1892, there was little change in patient's condition, she being depressed, complaining of many pains; slight noises disturb her, she is fearful of impending dangers of various kinds. During this time her weight varied between 140 and 143 pounds.

Discussion.—These notes refer to the results of ten-day averages. The amount of urine varies little from the average, 629 cc. The average specific gravity is 1019. The solids average 28, tending to a higher level in the last half of the observations. The urea rises slightly from the beginning, the average being 12.99. The uric acid averages 0.27. The ratio of uric acid to urea varies little from 1:48. In other words, the quantity of urine, solids, urea and uric acid are all markedly diminished, with a low ratio of uric acid to urea, as in Case IV.

Case VII. R. E. S. Male, aged 59. Admitted July 21, 1893. No heredity. At 22 he had "nervous prostration," and made a slow recovery. He has had like trouble since from time to time. He has been applying himself too closely to business for some while. Six months ago he began to worry concerning financial affairs. This anxiety grew more marked, so that six weeks ago he became depressed, apprehensive of impending trouble, fearing poverty, and was somewhat suicidal. No hallucinations. Insomnia. Failing appetite. During the period of the observations his condition was briefly as follows: Up to August 10 there was slight change; he was usually depressed, and only at times a little more cheerful. From then on he grew better, eating and sleeping well. Discharged December 8, recovered.

Discussion.—The amount of urine is diminished, yet it showed a constant tendency to rise from August 16—i. e., from the time he began to improve—and on September 2 reached practically normal. The solids varied between 22 and 30. The urea is very low throughout. The uric acid is also low. In the daily changes the ratio of uric acid to urea vibrated between 1:20 and 1:60, and the average is 1:34. The proteids were estimated during the first two weeks and the last four days. It was found that they fell in the three first days from 80 to 32—the urea and uric acid following. From that time the proteids rose to 140, August 13, while urea and uric acid fell. He lost weight from

July 21 to August 1, two pounds, and in August gained nine pounds.

Case VIII. W. M. Male, aged 29. Admitted April 23, 1894. No illness except rheumatism twelve years ago. For the past three months he has been morose, crying, worrying over his work and finances. The last of March he said that his "mind was not right and not clear." Three weeks before admission he wandered out in the street in his night-clothes. He has insomnia; is not suicidal. Weight 115. During May he improved until the 28th, when he was much depressed, even suicidal in talk. From this time he improved, at first gradually, until September 22, when he suddenly cleared up mentally, and was cheerful to the time of his leaving the hospital, November 7, "recovered." While under observation he lost four pounds.

Discussion.—The amount of urine varies between 400 and 1660 cc., averaging 788 cc., the average for May being 863, while for June 736. The solids varied considerably, the average being 37.37. The urea varied within somewhat wide limits, the average for May being 17.70, for June 18.20, and for the whole period 17.95. The uric acid for the same time was 0.49, 0.57 and 0.54, respectively. The ratio, however, changes comparatively little from the average, 1:33; it being in May 1:34, and in June 1:37—that is, it has a falling tendency. To sum up, the urine, solids, urea and uric acid are all diminished, the ratio of uric acid to urea being normal.

Case IX. J. J. B. Male, aged 60. Admitted July 5, 1892. A man of nervous disposition; was a patient in the hospital for six months in 1885 with an attack of melancholia. In good health until last January, when he had influenza. Two weeks before admission, family trouble brought on another mild attack; he was extremely anxious, nervous, and worrying about himself and family. During the first few days he was less anxious than from July 9 to the end of the observation.

Discussion.—The amount of urine averages 1445 cc. During the first four days it was higher, about 1899 cc., than in the following days. It is during this time that he was less disturbed than afterwards. The specific gravity, 1016; the solids, 55; and the urea, 31, are normal. The uric acid, 0.64, is not as high as is usual, yet, as was said in Case V, the ratio of 1:49 between uric acid and urea is not pathological. In this case of a slight attack of melancholia the amount of urine, solids, urea and uric acid, and the ratio between the latter two are all normal.

Case X. F. T. B. Male, aged 27. Admitted May 2, 1892. Naturally cheerful. Enjoyed good health to about February 1. The death of an intimate friend in the winter depressed him much, and in March he was in such a debilitated and discouraged condition that he had to stop work. This did not improve him, as he worried, became suspicious and depressed. Just before admission he was much excited, fearing he was to be lynched, and was suicidal. He had insomnia and a poor appetite. During May and June he ate little, having to be fed; slept poorly. Mentally he was much depressed, deluded as to his own wickedness, and occasionally in a stupid condition. While under observation he steadily improved, so that by the last of September he seemed perfectly well, and in November was discharged recovered.

Discussion.—The amount of urine during July is diminished (see table, p. 525). However, from the end of July, as he grew better, the quantity of urine increased, and by the middle of August it was normal. The solids show the same increase, but here it is more gradual. The urea and uric acid went hand in hand, increasing from a low level up to near the normal. The increase showed itself on the first of August. The ratio of uric acid to urea oscillated about 1 : 33. The patient unquestionably ate and drank less in July, when he was losing weight, and was still depressed. Such a state of affairs would easily account for the diminished nitrogenous excretion and the quantity of urine and the solids. Similarly an increase in the diet would produce a corresponding change in the urinary constituents. Below is a table which will show the monthly changes.

	Amt.	Sp. Gr.	Solids.	Urea.	Uric Acid.	$\frac{-}{U} : \frac{+}{U}$.	Weight.*
July.....	601	1017.5	24.15	10.66	.3411	1 : 31	119
August...	1152	1012	46.29	15.70	.4352	1 : 36	123
Sept.....	1510	1015	52.27	19.29	.6405	1 : 30	141

* Weights are taken the first of the month.

Here the amounts of urine, solids, urea and uric acid are decidedly diminished in July, when he was at the acme of his melancholia, and increased *pari passu* with his improvement. It is particularly interesting to note how little the ratio of uric acid to urea varies in the very different conditions, as in July when he was quite ill, and in September when he had recovered.

CASE I.

	Date.	No. of observ.	Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. U : U.	Body Weight.	Amt. of Proteids.	Perc. Urea to Proteids.
1892.	March	14	940	1022	48.18	14.82	0.65	1 : 23	106*		
	April	11	1063	1021	51.87	16.00	0.62	1 : 26	110½		
	May	24	1063	1020	49.40	18.55	0.56	1 : 33	111⅜		
	Averages ..	49	1033	1021	49.34	16.45	0.61	1 : 27	111†		
1893.	July.....	15	894	1018	37.54	14.00	0.52	1 : 27	110¼	60	23
	August....	31	1082	1016	41.20	16.71	0.51	1 : 33	109½	92	18
	September	25	1037	1016	37.98	16.84	0.45	1 : 37	108⅓	97	17
	October...	25	966	1017	38.25	18.40	0.49	1 : 38	113	119	16
	November.	28	1178	1018	49.47	24.07	0.54	1 : 44	112¼	109	22
	December.	27	1001	1019	44.27	21.22	0.47	1 : 45	109	101	21
1894.	January...	24	1046	1022	54.87	17.50	0.48	1 : 36	106½	91	19
	February ..	24	720	1022	36.91	13.60	0.44	1 : 31	109¾		
	March	25	847	1017	33.57	13.72	0.46	1 : 30	106		
	April	28	902	1019	37.35	16.10	0.47	1 : 34	106		
	May	28	938	1017	37.11	15.14	0.45	1 : 35	109		
	June.....	30	883	1017	34.97	14.33	0.45	1 : 32	107		
	July.....	25	904	1015	31.26	15.08	0.52	1 : 29	..		
	August....	28	1073	1016	39.89	15.04	0.53	1 : 28	107		
	September	27	1018	1015	35.55	13.77	0.52	1 : 26	113		
	October...	25	897	1019	39.82	13.68	0.54	1 : 25	112		
	November.	23	831	1020	38.72	14.30	0.58	1 : 25	114		
	December.	16	912	1021	44.62	16.06	0.60	1 : 27	113		
Averages.....		..	952	1018	39.93	16.05	0.50	1 : 32		94	19
Total averages ..		502	960	1019	41.10	16.13	0.54	1 : 30			

*Weights are taken the first of the month. †Weight of June.

CASE II.

Date.	Amt. of urine.	Sp. Gr.	Solids.	Urea.	Uric acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.	Amt. of proteids.	% of urea to proteid.
Oct. 24 to Nov. 2.	840	1021	39.70	18.14	0.52	1 : 36	86	21
Nov. 3 to Nov. 12.	950	1014	31.55	16.00	0.34	1 : 46	94	17
Nov. 13 to Nov. 22.	1070	1014	35.84	18.12	0.39	1 : 45	91	20
Nov. 23 to Dec. 2.	1130	1016	43.50	17.40	0.64	1 : 27	91	19
Dec. 3 to Dec. 9..	975	1017	46.37	19.75	0.46	1 : 49	85	26
Average.....	993	1016	39.38	17.88	0.47	1 : 39	89	19

CASE III.

August.....	1507	1012	41.75	23.56	0.73	1 : 32	100	24
September.....	1401	1012	40.97	18.09	0.54	1 : 33	97	19
October.....	1384	1015	46.52	24.14	0.62	1 : 39	89	27
November.....	1112	1017	43.89	21.57	0.49	1 : 43	91	24
December.....	1140	1018	43.70	20.37	0.50	1 : 40	91	22
Average.....	1305	1014	43.26	21.54	0.58	1 : 37	93	22

CASE IV.

1892 and 1893.	Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.	Amt. of Proteids.	% of urea to Proteids.
Dec. 21 to Jan. 3...	659	1021	32.23	14.09	0.21	1 : 67	55	26
Jan. 4 to Jan. 13...	809	1018	35.48	17.61	0.28	1 : 62	50	35
Jan. 14 to Jan. 23..	649	1021	31.03	14.73	0.30	1 : 48	49	30
Jan. 24 to Feb. 7...	700	1022	35.14	15.67	0.25	1 : 47	47	33
Feb. 8 to Feb. 19..	941	1020	46.29	20.30	0.31	1 : 63	50	40
Feb. 20 to Mar. 1..	710	1022	36.77	15.31	0.27	1 : 46	51	30
Mar. 2 to Mar. 12..	631	1023	39.22	14.78	0.30	1 : 49	48	30
Mar. 13 to Mar. 23..	803	1020	37.29	16.69	0.30	1 : 56	51	33
Mar. 24 to April 5..	630	1023	33.41	14.43	0.25	1 : 53	48	30
April 6 to May 5...	610	1025	37.00	15.66	0.29	1 : 50	50	33
Average.....	714	1022	36.38	15.38	0.28	1 : 56	50.4	31

CASE V.

1893.	Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.	Amt. of Proteids.	% of urea to Proteids.
May 27 to June 7..	529	1024	27.95	12.65	0.36	1 : 35		
June 8 to June 19..	434	1025	24.15	11.28	0.31	1 : 27		
June 21 to June 30.	422	1022	20.64	9.50	0.28	1 : 34		
July 1 to July 13..	505	1026	28.60	11.05	0.34	1 : 35		
July 14 to July 20..	360	1022	17.70	7.94	0.29	1 : 27		
Average.....	450	1024	23.80	10.48	0.31	1 : 32		

CASE VI.

DATE.		Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.
From.	To.						
July 8.....	July 22....	583	1017	25.09	11.3	0.25	1 : 45
Sept. 2....	Sept. 11....	627	1017	24.79	10.7	0.27	1 : 39
Sept. 12....	Sept. 24....	669	1015	23.38	11.0	0.26	1 : 44
Sept. 25....	Oct. 5.....	650	1017	25.74	13.0	0.28	1 : 46
Oct. 6.....	Oct. 21....	661	1018	27.73	14.9	0.26	1 : 57
Oct. 22....	Nov. 8.....	561	1020	26.13	12.6	0.26	1 : 55
Nov. 10....	Nov. 24....	685	1021	33.52	15.3	0.32	1 : 46
Nov. 25....	Dec. 8.....	633	1021	30.95	14.3	0.25	1 : 56
Dec. 10....	Dec. 24....	676	1021	33.06	14.3	0.27	1 : 53
Dec. 26....	Jan. 3.....	565	1022	28.97	12.5	0.28	1 : 44
Averages.....		629	1019	28.00	12.99	0.27	1 : 48

CASE VII.

DATE.		Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.	Amt. of Proteids.	% of Urea to Proteids.
From.	To.								
July 31..	Aug. 10.	473	1026	30.20	14.40	0.45	1 : 32	82	18
Aug. 11.	Aug. 20.	522	1020	22.15	10.35	0.32	1 : 33	..	..
Aug. 21.	Aug. 30.	564	1023	26.70	12.90	0.44	1 : 29	..	..
Aug. 31.	Sept. 3..	920	1014	28.87	12.31	0.28	1 : 44	120	10
Average.....		620	1021	26.98	12.49	0.37	1 : 34	101	12.6

CASE VIII.

DATE.		Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.	Amt. of Proteids.	% of Urea to Proteids.
From.	To.								
May 9...	May 18..	955	1020	41.90	19.30	0.56	1 : 35		
May 19..	June 1..	796	1020	34.30	16.10	0.43	1 : 37		
June 2..	June 20..	765	1025	41.60	20.30	0.69	1 : 29		
June 21..	June 29..	638	1023	31.69	16.11	0.46	1 : 35		
Average.....		788	1022	37.37	17.95	0.54	1 : 33		

CASE IX.

July 7..	July 13..	1560	1016	53.43	31.41	0.59	1 : 53		
July 14..	July 19..	1330	1016	57.33	31.33	0.68	1 : 46		
Average.....		1445	1016	55.38	31.37	0.64	1 : 49		

CASE X.

DATE.		Amt. of Urine.	Sp. Gr.	Solids.	Urea.	Uric Acid.	Ratio. $\frac{-}{U} : \frac{+}{U}$.
From.	To.						
July 1.....	July 11.....	752	1017	27.70	11.76	0.40	1 : 27
July 12.....	July 25.....	547	1015	19.78	9.80	0.27	1 : 36
July 26.....	Aug. 4.....	745	1017	24.30	10.37	0.30	1 : 34
Aug. 6.....	Aug. 16.....	1182	1013	36.15	15.24	0.36	1 : 42
Aug. 17.....	Aug. 26.....	1443	1011	38.10	18.09	0.54	1 : 33
Aug. 28.....	Sept. 7.....	1465	1014	45.08	16.97	0.47	1 : 40
Sept. 8.....	Sept. 21.....	1495	1015	51.05	19.58	0.63	1 : 31
Sept. 22.....	Sept. 25.....	1685	1015	58.08	18.12	0.69	1 : 26
Averages.....		1163	1014	37.53	14.83	0.45	1 : 33

General Summary.

The amount of urine.—In these cases in which the observation extends over some period of time the urine is usually diminished, at times remarkably so, increasing in amount with the patient's improvement. However, there are two cases (III and IX) where the amount is not abnormal, both of these being mildly sick. In the cases I and II the amount is only slightly diminished. The explanation of this lessened amount of urine is, very probably, due to the little fluid taken in by these patients, hence the excretion is small.

The specific gravity.—This is within normal limits in all cases, contrary to the high specific gravity observed by Stefani.

The solids.—They are diminished among these patients with one exception (IX), who was only mildly depressed.

Urea.—This is almost always diminished, in some cases very low, as in V, (8 grams). In one instance (IX), a case of mild melancholia, it is normal. In case X, where there is a marked improvement during observation, the urea rises from 9.8 to 19; and in case I, during a period of temporary improvement, there is a slight increase in the amount of urea; yet in four other patients, where there is a slight and gradual improvement, no corresponding rise is noticed in the amount of urea.

Uric Acid.—Uric acid is, as a rule, diminished. It is, however, not the absolute amount of uric acid, but its ratio to urea, that indicates whether there is any relation between it and the patient's condition. As stated above, the ratio differs considerably in normal individuals. Let us see whether in these cases there are either very low or very high ratios, and whether the ratio curve bears any relation to the improvement.

Case I. For the first attack a fall from 1:23 to 1:33 occurs; this goes parallel with a marked improvement. When in the first part of the second attack the patient is becoming worse there is a fall in the ratio (1:27-1:37), which fall continues during three months of improvement (1:37-1:45). The ratio rises from January to March (1:36-1:30), while the patient is worse, from then on the condition of the patient is stationary, and the ratio, while varying between 1:35 and 1:26, shows no rising or falling tendency.

Case II. Shows variations between 1:27 and 1:49, which is

within normal limits. There is no tendency to rise or fall with the improvement in the patient's condition.

Case III. Ratio normal (1:32-1:43), and there is a steady fall as the patient improves.

Case IV. Ratio is low (1:46-1:67), with a tendency to rise in the second half of the observations, there being no change in the patient.

Case V. Ratio normal (1:27-1:35), varying little, showing no tendency in one way or the other, the patient's condition is stationary.

Case VI. Ratio rather low (1:56-1:39). No tendency to fall or rise. Condition stationary.

Case VII. Ratio normal (1:29-1:44), the latter figure representing observations made when he was slightly better.

Case VIII. Ratio normal (1:29-1:37). No tendency to rise or fall with patient's improvement.

Case IX. Ratio rather low (1:46-1:53). Condition stationary.

Case X. Ratio varies within normal limits (1:27-1:42). This patient was at first very ill, but improved rapidly and during last observations was practically well. The ratio shows no relation to this change.

In conclusion, a very high ratio is seen only in the first attack of Case I; this returns to normal as the patient improves. In the second attack, however, the relation which seems to be present in the first attack is not seen. Low ratios are found in IV, VI and IX. The condition of these patients is stationary. The other cases (II, III, V, VIII, X), show ratios within normal limits. All of these but V improved during observation, X so much so that he became practically well. In none was this improvement expressed in the ratio curve. Case III, however, shows a steady fall in the ratio curve which runs parallel with the improvement in her condition. Hence in these cases there is no constant relation between the mental condition and the ratio of uric acid to urea.

While the results are negative as regards the ratio of uric acid to urea, they are positive and uniform as regards the diminished amount of urea and uric acid. The most natural cause of this diminution, noted by other observers, is that these patients eat

less than do normal individuals. The proteids were calculated in five cases, as described above (see case I), in order to decide this point. If it is supposed that the estimate of the proteids is accurate, then it is seen in four of the five cases that the percentage of the relation of the urea to the proteids is low. In other words, the nitrogenous excretion in the urine is not only absolutely, but relatively, diminished in comparison with the amount of proteid taken in. A storing up of body albumin, as shown by an increase in weight, would explain such a condition. However, as only one of these patients gains weight while the percentage of urea to proteids is low, this supposition, as expected, is inadequate to explain these facts.

Another possible, and perhaps in some cases a true explanation, is that there is a diminished absorption of the food ingested. Such a conclusion cannot be drawn from these cases, as the method of estimating the proteid is too crude. Later careful experiments showed that the method used on these cases made the proteid usually too high, and only occasionally too low. This, also, speaks against the theory of diminished nitrogenous absorption in these patients. Yet, in some subsequent observations made in a case of melancholia where the weight did not change, the percentage of the urea to proteid is diminished as in our four cases. This would seem to give credence to the theory of diminished absorption of proteid in some cases of melancholia. The last series of observations made in the McLean Hospital Laboratory were kindly given to the writer by Dr. A. Hoch, whom I wish here to thank for his great assistance in revising this article. In this case the food was accurately weighed and the proteid calculated, the total nitrogen in the urine was estimated by Kjeldahl's method and converted into terms of urea (see table).

Date.	Proteids.	Urea.	% of Urea to Proteids.
April 13 (1895) . .	63.28	10.05	16
" 14	72.16	11.13	16
" 15	71.16	9.63	14
" 16	75.14	10.34	14
" 17	136.65	21.00	15
" 18	92.27	22.28	24
" 19	106.25	25.59	24
" 20	99.04	25.58	26
" 21	210.70	24.60	11
" 22	88.96	11.05	12
" 23	72.79	20.34	28
" 24	115.95	17.95	16
" 25	66.78	18.08	27

However, a careful examination of the faeces must be made along with the nitrogen in the urine, and accurate estimation of the proteid ingested, before the apparent result of these last observations can be considered conclusive. Not having such observations, it can only be said that the diminution of urea and uric acid is absolute, and due probably to a lessened ingestion of proteid.

Conclusions on Melancholia.

(1) The amounts of urine and solids are generally diminished, and they usually increase with the patient's improvement.

(2) The specific gravity is normal.

(3) The urea and uric acid are, as a rule, diminished.

(4) The diminution in nitrogenous excretions is due, in most cases, to a diminished ingestion of proteids, but in some it may possibly result from a lessened absorption of food.

(5) The ratio of uric acid to urea shows no constant relation to the mental condition.

A case is appended to this series which cannot be classified as a simple melancholia, but as there were distinct periods in which depression was marked, an investigation of the excretion is of value in comparison to the previous cases.

Case XI. B. H. Male, age 23. Admitted January 15, 1893. When a child four years of age he had severe diphtheria and scarlet fever. Following this he had a series of "cataleptic fits." He forgot everything he had previously learned. Recovered from his "cataleptic seizures" in about a year, but is said never to have been as bright mentally since.

Present illness began two years ago. He lost a good position. This discouraged him, and he became restless. Thought that people were persecuting him. About this time he began to indulge in sexual and alcoholic excesses. During past two years he had been growing steadily worse mentally. For past six weeks he has been at a sanitarium. His memory is poor, has no power of application, and is unable to take any responsibility. Is very suspicious of those about him; has been suicidal at times for the past year.

The clinical picture may be summed up as follows: At first he was suspicious; had some delusions of persecutions; soon he got into a state in which he remained during the greater part of his stay in hospital, often appearing stupid and confused, at times showing many confused delusions, usually of a depressive nature. In conversation he made senseless and irrelevant remarks and wrote meaningless and incoherent letters;

made persistent impulsive suicidal attempts, also would suddenly attack those about him. From this stupid and depressed condition he would frequently become clear.

Owing to the periodicity of these symptoms a record was kept, beginning with July 29, of the duration of such periods. On some occasions the time of the transition could be fixed to a certain part of the day. While at other times two or three days intervened before one could say whether he was mildly depressed and confused, or in his normal condition. These days of some uncertainty are not classified in either period. The time and duration of these periods can be seen in the table. The manifest periodicity stopped after December 18. His depressed periods varied from eight to ten days, and on an average were 7.8 days long. His normal period varied from two to ten days, and was on an average 7.4 days long. While the duration of the cycle varied from 13 to 22, and on an average lasted 18 days.

TABLE SHOWING THE DURATION OF THE DIFFERENT PERIODS IN CASE XI (B. H.)

Dates.		No. of Days in:		
Beginning.	Ending.	Confused.	Normal.	Entire Cycle.
July 29.	August 7.		10	
August 8.	August 14.	7		21
August 19.	August 20.		2	
August 22.	August 31.	10		13
September 2.	September 9.		8	
September 11.	September 17.	7		18
September 20.	September 24.		5	
September 26.	October 5.	10		18
October 8.	October 15.		8	
October 17.	October 23.	7		18
October 26.	November 2.		8	
November 5.	November 13.	9		22
November 15.	November 22.		8	
November 24.	December 1.	8		18
December 3.	December 12.		10	
December 14.	December 18.	5		16
	Average.....	7.8	7.4	18

From December 19 to the time of his leaving the hospital he gradually improved, being cheerful and bright most of the time. However, it must be remarked that the improvement was not without some interruption. His weight rose gradually from 138, after falling in March to 133, to 159 in February, the last two months it was 154 pounds. He was discharged in July "recovered." It has been learned later that, although able to do some work, his capacity is below the average. This case must be regarded as one of the so-called "Verblödungsprocesse" in the sense of Kraepelin, and is one which formerly was considered as a peculiar case of melancholia, owing to his evident depression.

CASE XI.—B. H. AVERAGES OF RESULTS OF URINARY OBSERVATIONS DURING CONFUSED AND WELL PERIODS.

DATES.		Sleep.		Amt. in cc.		Sp. Gr.		Solids.		Urea.		Uric Acid.		Ratio $\frac{-}{U} : \frac{+}{U}$.		$\frac{-}{U}$ & $\frac{+}{U}$ to Solids.		Proteids.		$\frac{+}{U}$ to Prot.		$\frac{-}{U}$ to Prot.	
Beginning.	Ending.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.	Con.	Nor.
July 29/93	Aug. 7....	....	6.4	....	997	....	1018	....	41.94	....	22.48	....	.60	.....	1:37.5	.....	57.1	....	110	....	20	....	.5
Aug. 8....	" 14....	3.3	....	660	....	1024	....	36.90	....	17.07	....	.49	....	1:35.1	.....	47.6	.....	68	....	25	....	.7	....
" 19....	" 20....	....	5.5	....	1065	....	1012	....	28.14	....	12.72	....	.48	.....	1:26.6	.....	49.3	....	114	....	11	....	.4
" 22....	" 31....	4.2	....	792	....	1020	....	36.80	....	14.87	....	.52	....	1:28.7	.....	41.8	.....	67	....	22	....	.7	....
Sept. 2....	Sept. 9....	....	4.5	....	926	....	1010	....	21.58	....	9.48	....	.32	.....	1:29.5	.....	45.4	....	....	....	....	....	....
" 11....	" 17....	4.4	....	583	....	1023	....	31.25	....	17.52	....	.56	....	1:31.9	.....	59.8	.....	....	....	....	....	....	....
" 20....	" 24....	....	4.9	....	1080	....	1012	....	30.20	....	11.98	....	.34	.....	1:34	.....	43.3	....	....	....	....	....	....
" 26....	Oct. 6....	4.0	....	584	....	1020	....	37.21	....	19.02	....	.70	....	1:27	.....	47.6	.....	....	....	....	....	....	....
Oct. 8....	" 15....	....	5.5	....	1115	....	1017	....	44.17	....	16.98	....	.47	.....	1:36	.....	38.6	....	....	....	....	....	....
" 17....	" 23....	4.6	....	760	....	1019	....	33.65	....	18.90	....	.60	....	1:31	.....	57.9	.....	....	....	....	....	....	....
" 26....	Nov. 2....	....	4.2	....	1742	....	1014	....	56.83	....	19.99	....	.86	.....	1:33	.....	50	....	76	....	26	....	1.1
Nov. 5....	" 13....	3.0	....	718	....	1030	....	50.19	....	19.49	....	.75	....	1:26	.....	43.9	.....	37	....	53	....	2.1	....
" 15....	" 22....	....	6.4	....	1575	....	1016	....	58.72	....	22.50	....	.75	.....	1:29	.....	39.5	....	113	....	14	....	.6
" 24....	Dec. 1....	5.3	....	1370	....	1014	....	39.73	....	20.16	....	.50	....	1:40	.....	65.1	.....	56	....	36	....	.9	....
Dec. 3....	" 12....	....	5.4	....	1900	....	1016	....	70.83	....	26.09	....	.78	.....	1:33	.....	38.5	....	95	....	20	....	.8
" 14....	" 18....	7.0	....	1478	....	1014	....	48.11	....	25.45	....	.62	....	1:40	.....	54.3	.....	39	....	38	....	1.7	....
Averages		4.97	5.35	849	1300	1021	1014	41.54	42.40	19.06	17.78	.592	.575	1:32.3	1:32.4	52.3	45.2	53	101	36	18	1.1	.6
Dec. 19....	Dec. 27....	....	....	....	1654	....	1013	....	48.46	....	20.88	....	.60	.....	1:35	.....	44	....	70	....	30	....	.6
" 28....	Jan. 5/94..	....	....	....	2183	....	1014	....	68.50	....	25.31	....	.69	.....	1:36	.....	38	....	65	....	39	....	1.1
Jan. 6/94..	" 14....	....	....	....	1471	....	1015	....	48.93	....	18.16	....	.69	.....	1:26	.....	38	....	68	....	27	....	1.0
" 15....	" 23....	....	....	....	1431	....	1016	....	52.19	....	16.51	....	.66	.....	1:24	.....	33	....	67	....	25	....	.9
" 24....	Feb. 1....	....	....	....	1454	....	1017	....	55.45	....	20.07	....	.63	.....	1:32	.....	38	....	77	....	26	....	.8
Feb. 2....	" 10....	....	....	....	1624	....	1018	....	67.10	....	20.97	....	.77	.....	1:27	.....	31	....	74	....	28	....	1.0
" 11....	" 19....	....	....	....	1735	....	1017	....	67.34	....	22.20	....	.80	.....	1:27	.....	34	....	70	....	31	....	1.1
" 20....	" 28....	....	....	....	1603	....	1020	....	74.56	....	24.14	....	.96	.....	1:25	.....	33	....	79	....	30	....	1.2
March 1...	March 9...	....	....	....	1921	....	1016	....	60.83	....	28.00	....	.69	.....	1:41	.....	43	....	88	....	32	....	.7
" 10...	" 20...	....	....	....	1680	....	1016	....	59.65	....	23.71	....	.72	.....	1:32	.....	41	....	87	....	27	....	.8
" 21...	" 30...	....	....	....	1843	....	1016	....	67.04	....	31.49	....	1.12	.....	1:28	.....	49	....	78	....	40	....	1.4
" 31...	April 8....	....	....	....	1521	....	1019	....	66.40	....	28.07	....	.89	.....	1:31	.....	44	....	113	....	27	....	.8
April 9....	" 16....	....	....	....	1586	....	1020	....	69.90	....	30.49	....	.95	.....	1:32	.....	45	....	114	....	27	....	.8
" 19....	" 26....	....	....	....	1516	....	1018	....	62.91	....	30.81	....	.96	.....	1:32	.....	51	....	110	....	28	....	.9
" 27....	May 2....	....	....	....	1360	....	1022	....	69.71	....	35.62	....	.88	.....	1:40	.....	51	....	112	....	32	....	.8
Averages		....	....	....	1637	....	1017	....	64.81	....	25.07	....	.80	.....	1:31.3	.....	40	....	81	....	30	....	1.

Discussion.—Amount of urine.—The variation in the quantity of urine during the different periods is very apparent from a glance at the table. It is constantly less in confused, and increases in the period of well-being, to finally oscillate around the normal. The average of the confused periods is 849 cc.; of the well periods, 1300 cc., and of convalescence, 1637.

Specific gravity.—Hand in hand with the above condition there was an inverse variation in the specific gravity up to November 15—i. e., higher in confused, lower in the normal state. In the last two cycles the specific gravity was about the same in depression (1014) as in the well period (1016). The average of the first six cycles is 1023 for the bad and 1014 for the good periods. During convalescence the specific gravity varies between 1013 and 1022, being higher towards the end.

Solids.—Five times out of eight the solids, as calculated by Häser's method, were higher during the well than during the confused periods. Three times the opposite was the case. The average of the periods, however, does not show a great difference. It is striking how, in the well periods, from the third cycle through the eighth, the solids rose gradually from 21.58 to 70.83. During convalescence the solids increase, oscillating about 65.

Proteids.—It was found that the patient ingested considerably less proteid, as calculated by the method described (see case I), during the five confused than during the well periods, as was to be expected; on an average, about half as much—53 grms. and 101 grms. respectively. The amount of proteid ingested during the well periods was practically the same as the average of the last two months that he was in the hospital—104 grams. A study of the results of the proteids in this case seems to be allowable, as the same method was used throughout, and the same errors would exist in the confused or in the well as in the convalescing periods.

Urea.—It is seen in tables that from August 19 to October 17 there is a constant rise in the average urea during confusion; before this there is a period in which the urea excretion during confusion is less than in the well period just before, and greater than that of the well period which followed. In the last three cycles the reverse is the case; namely, the urea of the well period is greater than that of the confused period, but the variation is less

marked, so that the average of the urea in all the confused and well periods shows a larger excretion of urea in depression (19.06 and 17.78 grams). In other words, not considering the amount of proteid ingested, it may be said that the patient excreted, for half the time, less; and half the time only a little more urea in his well than in his depressed periods.

During the last two months of his stay at the hospital, when he was practically well, the comparison of the urea excreted with the proteid ingested gives results (31.27 and 32 per cent.) which can be considered as normal in this case, the more so as in health 100 grams of dry proteid yield 31 grams of urea.[36] In general it is seen that, although the proteid ingested during his well periods corresponds to that ingested during the time he was perfectly normal, the urea did not, it being lower every time. Since the proteid ingestion is known, a table is made of the percentage that the urea excreted is of the proteid ingested (see next to the last column of tables), and this shows that invariably the percentage is greater during the confused than in the well periods before and after. Comparing, in general, this percentage (18) during the well periods with that (30) of the last two months, it is found that, in spite of the fact that the proteid ingested was the same, the percentage of urea is decidedly less, not even two-thirds of that of the latter part of his convalescence. In his confused periods, on the other hand, we find the percentage is not only greater each time than in the well period immediately preceding it, but in three cases it is greater than the average in convalescence. This coincides with the fact that usually the percentage of urea and uric acid in relation to the amount of solids is greater during the confused periods than during the well periods (52 and 45).

Uric Acid.—No constant variation in uric acid can be made out in reference to states of confusion and well-being. During the first half of his cycles the uric acid was lower in his normal periods; but from October 17 to the end of them the reverse was the case. An inspection of table I will show this, and also the remarkable similarity in the average amount of uric acid in all the confused and in all the normal periods—0.592 and 0.575.

[36] A. D. Waller, An Introduction to Human Physiology, 1891, p. 252.

From December 19 on there is a gradual and decided rise in the amount to the end of the observations, the average during convalescence being 0.80. This rise can be attributed most probably to the increase of the proteid ingested. This assumption is borne out by the fact that from December 28 to the end of the observations the uric acid increased *pari passu* with the proteid, the uric acid never varying more than 0.4 per cent. for each 1 per cent. of the proteid taken in.

If we calculate what percentage the urea and uric acid are of the total solid, it is found that during confusion it is nearer normal than in the well periods, 52.2 and 45.2, the normal in health being about 50. The average in convalescence is 40, while the average from March 21 to May is normal. The significance of these results seems to be that there is a probable increase in the chlorides, phosphates, and sulphates (the most important of the solids, excepting urea, in the urine) during the well periods of the cycles as compared to urea.

What inference can be drawn concerning uric acid, for which this study of the case was begun? The most important is that uric acid follows here the same laws as urea; this is shown by the fact that the ratio remains about the same, and that a curve representing the percentage of uric acid in relation to the proteid ingested shows the same character as a similar curve showing the percentage of urea.

On summing up we find that during the whole course of the disease the patient's metabolism shows a decided difference from that in the time of his recovery, inasmuch as the excretion of urea in relation to the proteid taken in during the well parts of his cycle was constantly below normal, being on an average 18 per cent.; during the confused periods being always above that of the preceding and succeeding well periods, and three times even above normal. That the former was the case in spite of the fact that the same amount of proteid was consumed as at the end of convalescence, and that the latter was the case notwithstanding the proteid taken in was less, points to the following probable explanation. It is well known that when the proteid is diminished below that required by the organism, some of the body albumin is utilized, so that the relative amount of urea excreted to the proteid ingested is more than in normal

nitrogenous equilibrium. And on the other hand, that, after a period when insufficient food has been taken in, a normal amount is again ingested, a storing up of body albumin occurs to replace the former loss in the organism,[37] so that the relative amount of urea excreted to the proteid ingested is less than normal. This result, the increase of 20 per cent. (i. e. from 30 to 36) of the relative amount of urea to proteid taken in above normal, in the confused periods, explains, in part possibly, the rapid loss of body weight in such conditions.

Merson[38] suggested this as the explanation of the loss of body weight in some cases of general paralysis, as he found an increased excretion of urea, not due to an increased proteid ingestion, but most likely to the using up of the body albumin. Now this seems to be just what happened in this case. The patient took insufficient food in his confused periods, and hence used up his body albumin; and in his well periods, when eating sufficiently, some of the proteid was used to restore the body albumin that was used up in his confused periods.

The convalescence was divided from December 19 into periods of nine days each, half of the duration of the whole cycle, in order to see if there was any tendency to fall and rise in the various elements as during his illness. On examining the table it is seen that the proteid falls in the three succeeding periods, which correspond to the depression; and the percentage of urea and uric acid to the proteid during the first period shows also the same tendency as before. There is no such tendency observed in the other curves. This would seem to indicate that his periods did not stop suddenly after the marked mental changes ceased, but gradually.

Conclusions on Case XI.

(1) The amount of urine is less in the confused periods than in the well periods, and in both parts of the cycle is less than during convalescence.

(2) The specific gravity is higher during the state of confusion

[37] See Van Noorden, Lehrbuch der Pathologie des Stoffwechsels, p. 125.

[38] "The Urinology of General Paralysis," West Riding Lunatic Asylum Medical Reports, vol. IV, 1874, p. 89.

than during convalescence, and in the latter is higher than in the well periods.

(3) The solids excreted in the confused periods, in comparison with food taken in, are about twice the amount of the well periods, and in both parts of the cycles they are two-thirds of that of convalescence.

(4) The urea and uric acid are slightly more in his bad than in his well periods, but less than in health.

(5) The nitrogenous excretion seems to be slightly greater in the time of confusion than the intake; while in the well periods it is the reverse.

(6) On the whole, uric acid goes hand in hand with urea.

(7) The variation in the nitrogenous excretion can be explained by changes in the metabolism due to the variations in the amount of proteids ingested; yet it must be considered possible that it may be due to some change in the metabolism caused by the disease.

Before closing, I wish to express my thanks for the favors and assistance rendered me by the staff of the Hospital, and especially by the superintendent, Dr. Edward Cowles.

AN IMPROVED CLASSIFICATION AND TABULATION OF CASES OF INSANITY.

By R. M. PHELPS, M. D.,
Asst. Supt. Rochester State Hospital, Rochester, Minn.

This paper is an attempt to briefly set forth the advantages of a new method of classifying and tabulating cases of insanity, as exhibited in the appended table, which table applies the method upon the actual cases of the official year of 1894-1895 of the hospital with which I am connected.

The objections to the common tables used are for the most part well known. They are too diffuse and scattered. The facts intended to be conveyed can only be obtained by studying and figuring, and this is rarely attempted. There are too many figures and too few clinical facts. Even the clinical relations attempted are very vaguely shown. There is an abundance of general averages, with too little of figures applying to especial clinical groups. For example, if we take the "duration of insanity before admission" of the epileptics admitted, which might be, say fifteen years, and of the acute cases admitted, which might be possibly three months, and exhibit the general average of about seven years, we give a result which if stated by itself is almost devoid of clinical meaning, and in some cases actually misleading. Given alone in this case it changes the two significant relations into one of little value, yet this is what the present tables do throughout, and what we seek to avoid.

Again, most of the tables now in use, at the end of each year mix the year's fresh cases with the mass of chronics of all preceding years, and the actual outcome of any certain number of cases is thereby so fogged as to be never really known. We never hear of that year's cases by itself again. For example, suppose in a hospital 200 admissions in a year and 50 recoveries are reported, but these fifty recoveries are not from any specified

admissions, but from the whole mass, some of whom may have been there forty years. So are the deaths given, so are the number sent out improved, so too are the ages and various other data. Ordinarily only the diagnoses and the duration before admission are given for that especial year, while as regards following out any special class, like the senile cases, or the epileptic, or the acute cases, and finding out how long they live, what proportion of recoveries each may have, what proportion of deaths, what proportion of hereditary cases, what proportion of chronic, and so on, there is no possible means of disentangling these facts.

Such being the objections we seek to avoid, we turn to our attempt at remedying them. First, we will present the classifications. In this classification there is expressed an earnest attempt to collect the cases into clinical groups, bounding them as far as we can by lines which represent fundamental distinctions, and disregarding largely any temporary and trifling changes. The exaltation or depression which the case exhibits has long been regarded as one of the main distinguishing differences between the cases, but although it tends to be permanent, yet the two elements so frequently mix, mingle and change, and so rapidly fade into dementias in chronic cases, that, as they seem to lack much fundamental significance, we have been led to disregard them almost wholly in favor of more fundamental underlying conditions.

This classification presents four chief classes. For convenience sake, however, we would separate the first class (Class A), "Cases showing Retrograde Progression," into its two component parts and state all cases to be divided into five different classes, as follows: First, "Senile cases," either in simple decline or with gross organic changes, subdivided still farther according to ages. Second, those of "Specific causation," including alcoholic or drug cases, syphilitic cases, and general paresis. Third, "Cases showing initial or early defect," subdivided into imbeciles of three grades (arbitrarily adjudged adolescents), or developmental cases, epileptics (not including those senile), and paranoiacs (not including senile paranoiacs). Fourth, "Cases chronic before admission," excluding of course such chronic cases as belong to the above classes of paranoia, imbecility, etc. These are mostly terminal cases, but include also a few chronic

cases in which the mode of beginning is not known. Fifth, "Acute and curable cases," subdivided into ordinary manias and melancholias, and including mania-a-potu.

Of the "seniles" it is to be said that the class includes all those cases in which senility is the cause or helping condition. By senility we usually refer to circulatory and atrophic changes. In this table we do not note whether the case be senile paranoia, senile melancholia, or senile dementia, counting these of rather less actual value than the subdivision according to ages. This subdivision could, however, be inserted also if desired. Of course age alone is not the deciding point as regards senility. One case over sixty years of age has been put down as acute mania because of the absence of senile causative elements, the acute attack and the lack of dementia both before the attack and after recovery. The diagnostic signs are found in the circulatory changes of the heart and arteries and perhaps secondarily in the kidneys, fatty changes, senile appearance of the body, arcus senilis, a slow invasion, and a dementia at the bottom of whatever form of melancholia or other emotional state is found.

At the beginning of life and, figuratively, at the other end of this line, we find an even larger number of cases. Of actual imbeciles (those in which we can get a statement of some kind concerning defectiveness in childhood by the relatives) we get a few cases. Of a somewhat higher grade in imbecility, including those whose defectiveness extends back to childhood, but who have had somewhat of ability to learn and to do, we receive a somewhat larger number. These have been known as "queer," or "odd," or "not bright." Some have been to the reform school, or are of the behavior which frequently leads there.

Of a class one step higher than this, including young people becoming definitely known as insane at about the ages fifteen to twenty-five, we have, however, a large number. We term these the "adolescent" or "developmental" cases. The diagnosis is based somewhat more on the age than is that of senility, but by no means wholly or entirely so. There is a tendency toward terminal dementia in this class of cases, and we are of the opinion that they also interlink very decidedly with imbecility in their characteristics. Most of them are dull and have been always in some way below grade. They are committed frequently because of an accumulation of the troubles which have been for a long

time peculiar to them. Some of them, instead of a general dullness, have brightness and activity, and their trouble is manifested, not so much by a symmetrical letting down of general ability as by special perversion or eccentricity, or perverse immorality. Recoveries in those who suffer from acute attacks leave a strong liability to other attacks. To bring out this idea in the thirty-one adolescents listed in the appended table, eighteen have a general mental dullness extending back indefinitely into their teens. Thirteen come here with a history of acute onset or attack; but of these thirteen, six cases had previous attacks, dating back to between sixteen and nineteen years of age; while of the remaining seven, three are now having their first attacks here at from sixteen to twenty years of age, and in the remaining four the acute attack is merely superimposed upon a previous mental dullness.

The remainder of the five classes, as they are based on commonly used distinctions, will perhaps need little if any comment. Some special explanatory notes are perhaps needed.

1. We have placed paranoia (under which name we only put cases quite typical in character) under the general heading of developmental cases. Among the senile cases there occur very perfect cases of paranoia due probably to slowly invading circulatory changes. These are classed as senile. While most of the paranoiacs are fairly developmental in that they reach back into the developmental period, and while in strict construction only such should be included, we have included an occasional case in which such history cannot be obtained, chiefly to avoid another class of paranoia, under the head of "Cases becoming chronic before admission."

2. Chronic manias, chronic melancholias and terminal dementias have very loosely dividing lines; for terminal dementia begins to creep in early even in the acute stages in insanity. Moreover, in some dull cases it is hard to say of a special case whether exaltation or depression predominates, and indeed, in our opinion, it makes very little difference. Chronicity and the characteristic of a permanent unchanging state of mind are the real prognostic elements.

3. In as far as knowledge can be had we would not change the diagnostic condition of the case because of the length of time which has elapsed. An imbecile or adolescent is called an imbe-

cile or adolescent even if not admitted till fifty years of age. The same is true of the other classes, with the exception (more apparent than real) of the class called "chronic before admission."

4. Cases in which there is an irregular or a quite perfectly cyclical periodicity are disposed of by placing first those which are adolescent in the class of adolescents. This will probably dispose of the majority of these cases. Those which are not adolescent, if the recovery is not complete, are placed among chronic cases. A case in which a complete recovery takes place, if the recovery maintains long enough, so that the patient leaves the hospital and keeps well through a period of three to six months thereafter, is discharged as recovered, and must necessarily come in the next time as an acute case, or, if adolescent, among the adolescents. If the recovery does not last long enough to secure discharge it is of course ignored. The bugbear of *recurrent attacks* and of cases having periodical tendencies does not appear very serious when placed in this light, for as far as vitiating the table goes, not the whole number of recommitments is to be considered, but only those which had been discharged as recovered. Such patients in this hospital are very few. A complete study of recommitments is, however, best made by putting them in a separate table and analyzing them exhaustively.

5. In forming these tables it is not practicable nor advisable to avoid changing very frequently the opinions expressed in the admission papers. These papers are often grossly wrong, at times even denying heredity when there is a relative in the same hospital. This table therefore cannot correspond with the admission papers. To be most conscientious and true, the latest information obtainable at the end of the year from letters and from conversation with relatives and friends must be incorporated. Inconsistency even with one's own previous records is of trifling consequence.

6. The word "curable" is used only in Class D. It will be readily seen, however, that there are occasional recoveries among the adolescent class and occasional ones among the senile cases.

7. It is to be emphatically noticed, however, that this table, in its original form, for office use, has each individual *listed by name*, the name placed in its special class, and the changes in each name of each group being noted at the end of the year for that

group. The table printed here is condensed into groups represented by figures because of the space taken, and for that reason only.

Of the tabulation it is to be said that it simply consists in placing as many of the items of clinical import as it is practicable to collect in one printed table, and as carrying the cases in this table through as many succeeding years as is desired, until at least they become wholly chronic cases. This table is kept separately for the cases of a particular year, the discharges and deaths for each year being added at the end thereof. Crowding so many elements into one tabulation is for the sake of the impression made by what may be called the graphic element, the ready sight of the relationships of which would be dissipated and lost if on separate pages.

We will only hint at the beginning of the studies which this table enables us to make. General paretics and seniles show graphically the greater number of the deaths in the early years. Adolescents and imbeciles show the lowest number. Acute and curable cases show the larger number of recoveries, adolescents few, seniles and others very few. Adolescents are seen to be almost always single, seniles and others almost always to have been married. The grouping of ages is seen quite graphically. Imbeciles are seen to be of rather advanced years, the younger and more gross cases of course going preferably to schools for imbeciles. The "duration before admission" can be studied with regard to each group separately. The relative location of the multiple attacks, and the location of the unimproved at the end of three or five years, is clear. In short, the relation which any one of these elements bears to any of the others is thus placed in graphic form.

Moreover, from the original form of this table, made out by individuals, additional studies or adjunct tabulation can easily be made out. For example, a study in the prognosis of each form will be most easily made.

With these explanatory comments we present a tabulation of one year's admissions to the Rochester State Hospital, carried through the two succeeding years. It is of course the aim and object of this attempt to be thoroughly practical, and to this end criticism is invited to bring out, if possible, any weak points therein.

Diagnoses.	Number Admitted.	DATA CONCERNING ADMISSION. Cases Heredity.	Married or Widowed.	Single.	No. Children.	No. Admission. Admission. 1st.	2nd.	3rd.	4 or more.	No. Attack. 1st.	2nd.	3rd.	4 or more.	Age. Age 90 to 100.	80 to 90.	70 to 80.	60 to 70.	50 to 60.	40 to 50.
A. *Cases showing retrograde progression.*																			
1. Senile cases.																			
a. Uncomplicated (largely circulatory and atrophic).																			
(1) Age 90 to 100																			
(2) Age 80 to 90	3		2	1	7	3				3					3				
(3) Age 70 to 80	7		6	1	129	7				7									
(4) Age 60 to 70	17	3	15	2	73	15	2			16	1					1			
(5) Age 50 to 60	8	1	5	3	21	7	1			8							8		
(6) Age 40 to 50	1		1		5	1				1									1
b. With complications.																			
(1) With paralysis agitans	1	1	1		2	1				1						1			
(2) With adult chorea	1		1		3	1				1									1
(3) With apoplexies	4		4		6	3	1			4					1	1	2		
(4) With other organic brain disease																			
2. Specific causes.																			
a. General paresis																			
(1) Over 60	1		1		4	1				1						1			
(2) Age 50 to 60	1		1			1				1							1		
(3) Age 40 to 50	2	1	2		4	2				2									2
(4) Age 30 to 40	3		2	1	3	3				3									
(5) Age under 30																			
b. Chronic alcoholic	9	3	6	3	15	8	1			9						1	2	3	
c. Syphilitic dementia																			
B. *Cases showing initial or early defect (defectives).*																			
1. Congenital or in early childhood.																			
a. Idiots																			
b. Imbeciles (pronounced)	3	1		3		3				3						1		1	
c. Imbeciles (medium grade)																			
d. Imbeciles (high grade)																			
(1) Mental weakness fairly symmetrical	11	2		11		9	1		1	11						1		1	
(2) Sexual perverts																			
(3) Criminal or other perverts																			
2. Developmental cases.																			
a. Adolescent cases	32	12	5	27	15	26	3	2	1	27	1	3	1						
b. Epileptic	11		1	10	7	7	3		1	9	1		1				3	2	
c. Paranoiac	10	6	7	10	21	16			1	17						1		2	
C. *Cases chronic before admission.*																			
1. Chronic manias	16	4	10	6	43	11	3	2		12	2		2			1	1	5	
2. Chronic melancholiacs	25	2	16	9	62	22	2	1		24	1							7	
3. Terminal dementias	10	2	4	6	19	9	1			10						2		4	
D. *Acute and curable forms (manias and melancholias).*																			
1. With slight excitement																			
2. With moderate excitement (ordinary acute mania)	38	13	24	14	61	28	8	1	1	25	7	3	3			4	8		
3. With extreme excitement (acute delirious mania)	3	1	1	2	4	3				3								1	
4. Mania-a-potu	2		1	1	5	2				2								1	
5. With slight depression																			
6. With moderate depression.	44	16	29	15	86	42	2			40	2	2				1	5	8	
7. With extreme depression.	4	1	2	2	6	4				4									
	274		147	127	501	235	28	6	5	244	15	8	7		4	36	47		

Total number cases as above.....274
One case "not insane".....1

Total number admissions.....275
Subtract case admitted twice.....1

To follow page 542.

| NCERNING INSANE. | | |

THE DIAGNOSIS AND TREATMENT OF MELANCHOLIA.

In the Practice of Prof. TH. ZIEHEN in Jena.

Translated by Dr. W. Alfred McCorn, Asst. Physician, Illinois Eastern Hospital for Insane.

Melancholia is one of those psychoses whose gravity is not often enough appreciated in practice, and so serious calamities occur. In what follows will be briefly discussed the definition, frequency and etiology, the symptomatology, course, prognosis, and exhaustively the diagnosis and treatment, the latter with special reference to the danger of suicide. As to literature I shall be limited to such works and writings as are particularly fitted to broaden the practitioner's knowledge.

1. Definition.

The definition of melancholia has not always been the same. We understand by melancholia to-day a psychosis whose chief symptoms are as follows:

1. A primarily dejected mood or depression.

2. A primarily retarded flow of thought, or thought inhibition (Denkhemmung).

The first symptom is never absent; the second may be temporarily hidden under special circumstances, to be mentioned later. The import of both symptoms needs no further explanation. I will merely state that the technical term "primary" means "not produced by other psychopathic symptoms." There is also a secondary depression and a secondary thought inhibition. When a paranoiac is dejected by the effect of persecutory ideas or voices, this dejection or depression is then secondary, for it is due to another psychopathic symptom, namely, sense deceptions with depressive ideas. We likewise know patients whose thought inhibition is secondary, in whom, for example, under the influence

of fascinating hallucinations, the flow of thought is markedly retarded. This is also secondary, because another psychopathic symptom, namely, fascinating hallucinations, is present. The depression and thought inhibition of melancholia are always primary. Still sense deceptions occasionally, and delusions more often, occur in the course of melancholia. But by studying the course and questioning the patient directly it is found that the dejection and thought inhibition had long preceded the sense deceptions and delusions, and also that the sense deceptions are merely an accidental, non-essential attendant symptom, and the delusions have been developed secondarily from the dejection in a manner to be discussed later, while the depression existed from the beginning of the disease, remains constant during its whole course, and is always proven to be primary by a careful psychological analysis.

The depression and thought inhibition of melancholia are confusedly co-ordinated. Each intensifies the other without it always being possible to decide whether the former depends more on the latter or the latter more on the former. In general, however, careful observation teaches that in most cases the depression occurs first, is more continuous and pronounced than the thought inhibition. Therefore melancholia is properly to be included among the affective psychoses, *i. e.* those psychoses whose primary symptom is a change in the emotions.

2. Frequency and Etiology.

The official statistics of insane hospitals are scarcely reliable for determining the frequency of melancholia, for, first, in the official reports melancholia is grouped with mania, paranoia, etc., under the caption of "simple psychoses," and second, melancholia very often runs its course outside of the hospital. To the local hospital, whose material was kindly placed at my disposal by Prof. Binswanger, there were admitted from January 1st, 1886, to January 1st, 1895, 160 female, *i. e.* 16.4 per cent., 78 male, *i. e.* 5.3 per cent., cases of melancholia.

These comprise only those cases which exactly correspond to the definition given above. Those cases in which neurasthenic or hysteric symptoms had preceded or still exist are included only when the typical symptoms, especially a constant motiveless de-

pression, exist. Sporadic attacks of anxiety occur often enough in neurasthenia and hysteria without one being justified in speaking of an added melancholia; whereas a constant motiveless depression is as foreign to simple neurasthenia as to simple hysteria, while morbid irritability is characteristic of the first and morbid instability of the latter. Then if in neurasthenia or hysteria a constant motiveless depression or anxiety exists, it is correct to assume that the neurasthenia or hysteria is complicated by a melancholia. I will later fully discuss the frequency, special etiology, treatment, etc., of melancholia developed on the basis of a hysteria or neurasthenia.

The preponderance of the female sex is not alone shown by the difference in the above figures, but also by the fact that pure, wholly uncomplicated, typical cases of melancholia form the chief contingent in the female sex, while among the male melancholiacs complicated, atypical cases are quite common.

The frequency of melancholia in general is not adequately expressed by these numbers. It remains to be considered that melancholia runs its course outside of a hospital quite often. Consequently I have determined the percentage of melancholiacs coming to me outside of the hospital with nervous and mental diseases. They amount to 7.2 per cent.

It is not uninteresting to compare the ancestry of melancholiacs with that *e. g.* of paranoiacs. This shows that the rural population furnishes an essentially larger percentage of melancholiacs than the urban, and that inversely the percentage of paranoiacs is greater in the latter.

The apportionment to the different ages is as follows according to the hospital admissions from 1886-1894:

	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55	55–60	70–80
M.	2	9	2	13	13	2	14	11	4	0
W.	3	9	15	20	17	23	17	18	10	1

All periodical cases have been omitted from this table. Evidently melancholia has a tendency to occur in females in the fourth and fifth decades. In regard to the men my number is still too small, yet I might state that the 9 cases in the 5th lustrum were complicated with neurasthenia, with one exception. The majority of uncomplicated cases of melancholia in men occur

between the 45th and 55th years, according to my figures. On the other hand it is apparent that the recent proposition that melancholia is a "disease of decline" does not agree with the facts.

Of the causes predisposing to melancholia, hereditary taint heads the list, as shown by the following summary:

A. *Male Sex.*

Taint on the father's side was present in 17 cases (21.8%), strong in 14.[1]

Taint on the mother's side in 13 cases (16.7%), strong in 12.

Taint indefinite as to which side[2] in 5 cases (6.4%).

Taint from the father and mother in 7 cases.

Taint was definitely excluded in 8 cases.

B. *Female Sex.*

Taint on the father's side in 27 cases (16.9%), strong in 24.

Taint on the mother's side in 33 cases (20.6%), strong in 27.

Taint indefinite as to which side in 15 cases (9.4%).

Taint on the father's and mother's side in 20 cases (12.5%), strong in 18.

Taint absent in 18 cases (11.3%).

In the other cases the statements as to heredity were so faulty and indefinite that heredity was questionable, yet I believe that among these cases there are considerably more untainted than tainted, as the gaps in the genealogy often were not great. In these cases which were above stated to be definitely untainted there was a complete genealogy including the grandparents, which I had investigated myself. Inebriety in the ancestors was proven in only five cases, still it is to be considered that this is often suppressed by the relatives. Homogeneous heredity is found very often. The father of 4 male melancholiacs and the mother of 4 others had had melancholia, likewise the father of 4 female melancholiacs, as well as the mother of 8 others (8.4% in

[1] I have called the heredity mild which is based on headache, anomalies of character, gout, diabetes in the father or mother.

[2] These are cases especially in which psychoses or neuroses were proven in one or more of the brothers and sisters.

toto). Still statistics show it when all these cases are collected in which melancholia or suicide can be proven in a blood member of the family; I have found 48 such cases (15 and 33), 22.2%. In one case 6 of the family had had melancholia and 3 committed suicide.

Besides heredity, *brain diseases in childhood* are predisposing. They were proven in 6 cases in the male sex and in 5 cases in the female. In 2 other cases a typical chorea minor had occurred in childhood. I demonstrated in 9 female patients a very mild congenital imbecility, *i. e.* dullness. Neurasthenia had preceded the melancholia in 11 male and 9 female patients, hysteria in 3 female patients. Migraine occurs very often among the personal antecedents of the female patients (10 cases, 6.3%). Finally it is known that the temperament affords a mild predisposition. In 15 female and 4 male patients such anomalies of temperament are proven; in these cases it is usually a matter of an extremely anxious temperament, rarely of an irritable one. Attacks of pavor nocturnus in childhood are reported.

Intoxications seem to play a small part. Chronic alcoholism occurred in 5 men and 1 woman. Abuse of tobacco was present in 3 male patients.

The factor of *exhaustion* has a bearing in its different forms. Sexual excesses, especially excessive masturbation, were present in 18 cases (12 males, 6 females). Frequent labors and protracted lactation played a decisive role in 2 cases; severe hemorrhages (*e. g.* climacteric metrorrhagia or post-partum hemorrhage on the 11th day after labor) existed in 3 cases. Intellectual and physical stress is of importance in 27 cases (6 men, 21 women). Stress is not alone and principally effective as such, but it acts by virtue of the pernicious emotions combined with it (feeling of responsibility, insufficiency, etc.). In 3 cases I observed a melancholia immediately follow dieting for obesity.

I found *insolation* effectual in one case, *head injuries* in 8 cases (6 men, 2 women).

During this period I have observed only 4 cases of melancholia of *pregnancy*, 11 of *puerperal melancholia*. In the latter the puerperal state acted very diversely; first it was the intense emotion combined with a dishonorable labor (3 women), then hemorrhage in the puerperal state, finally the exhaustion from frequent

labors, etc. The influence of lactation has already been mentioned.

Gynecological diseases and improper or prolonged *gynecological treatment* have evidently been of influence in 7 cases. A direct connection with the climacteric was possible in 8 cases (2 cases of climacteric metrorrhagia).

Other physical diseases play a subordinate part. As a rule the physical disease as such is not the effectual factor, but it usually acts by virtue of the combined emotions of worry, fear, etc. The following compilation embraces both sexes:

Panaritium	1 case
Carcinoma mammae	1 "
Carcinoma uteri	1 "
Gonorrhoea	1 "
Cystitis	2 cases
Ulcus ventriculi	2 "
Gastric catarrh	4 "
Vitium cordis	2 "
Acute articular rheumatism	3 "
Influenza	5 "
Syphilis	5 "
Pulmonary tuberculosis	1 case
Nephritis	1 "
Diphtheria	1 "
Chronic pharyngitis	1 "
Eczema	1 "
Diseases of the eye	1 "

All the previously cited causes—with the exception of heredity—are of less importance than *mental shock*. I find among the male patients no less than 29 (37%) and among the female 71 (44.4%), in whom a single mental shock or protracted emotion has been of decided influence. This factor is often improperly depreciated. I have always especially considered whether a morbid depression had preceded the mental shock. In the above cases the latter did not occur. The emotions which produce melancholia may be of the most diverse kind, yet in etiological statistics certain emotions recur with striking frequency. Death and serious illness of a relative (child, husband, etc.) head the list. Over-

exertion in the care of the sick occasionally co-operates, yet the chief factor is usually the worry, anxiety and sorrow. A very large number of the cases depended on the emotions incident to the betrothal. It is either the bride or bridegroom who is in doubt whether they "have chosen correctly," or whether they "deserve the happiness," whether they are equal to the demands of married life, etc.; then it is the mother, in whom doubts arise whether she did not give her consent to her daughter's engagement too quickly, etc. Nuptial melancholias on the contrary are much more rare; I have seen only one marked case. Of greater etiological importance are the emotions which are coincident with a material change in the position in life or mode of life (18 cases). Change to another place, in the occupation, a simple change of residence, may lead to an outbreak of melancholia in the predisposed. According to my experience, protracted pecuniary worry is of less importance than a single financial loss. One of the cattle dies, a cow calves prematurely, a debtor fails and the melancholia breaks out. Simple fright is quite often effectual. A fire, even though it causes little or no loss, and similar events, I find repeatedly recorded.

Hence it is always certain that melancholia, as well as the majority of the other psychoses, is a disease with several causes. Two or more of the factors cited usually co-operate. The trio is very often found, *e. g.* hereditary taint, stress, mental shock, etc.

3. Development.

According to the intensity of the symptoms, two chief forms are differentiated: melancholia gravis and melancholic depression or hypomelancholia. The following description refers exclusively to melancholia.

Occasionally the outbreak of melancholia is peracute. In periodical melancholia (see below) especially I have occasionally observed a very sudden invasion and ascendency of the disease, in two cases accompanied by rigor. In the majority of cases a longer or shorter prodromal stage precedes; sleep and appetite lessen, occasionally a motiveless depression occurs, the patients now and then complain of mild thought inhibition. Feelings of oppression in the chest appear as precursors of the later anxiety. The transition from the prodromal stage to the completely devel-

oped disease is usually abrupt. It starts from an experience or even an almost accidental thought of the patient. The experience inducing the definite outbreak is often entirely harmless. I knew a woman who had lost her child and since then the prodromal symptoms above cited have been present. One afternoon she attended a tea-party; her hostess gave her the last piece of cake and said, "The rest for the wicked." The woman well knew that this is a jocular expression, but she took it in earnest and referred it to herself especially. Intense anxiety and delusional self-accusations occurred the same day; the disease had passed from the prodromal stage to the crisis at one bound. From then on its course was that of typical melancholia. Another patient had had a uterine retroflexion for many years. At the climacteric pains and mild paraesthesia occurred in the legs; she then took gynecological treatment. As it did not relieve her troubles she worried a great deal, slept poorly, lost interest in her household duties and ate little. One day she again consulted the gynecologist, who said to her, "If she thought her spine was affected her symptoms would be entirely different." Anxiety soon supervened; she read an article in a popular work on diseases of the spinal cord and found that they could be produced by masturbation. It at once recurred to her that she had masturbated when a girl, and thus arose the hypochondriacal delusion of a spinal trouble and exaggerated delusional self-accusations. From that day until her recovery the anxiety and delusions continued. There are other cases in which the prodromal stage passes very gradually into the crisis; the depression becomes more continuous, attacks of anxiety become more frequent and more intense, and the characteristic delusions of melancholia are found to attend the change in the emotions.

4. Symptoms of the Crisis.

The chief stage or crisis of melancholia is characterized, as has already been stated in the definition, by two principal symptoms—depression and inhibited association. It is further characteristic of *melancholia gravis* that anxiety is added to the simple depression, and that the former of itself often gives rise to definite secondary delusions. In simple melancholic depression anxiety and secondary delusions do not occur.

The *depression* is always continuous, but its intensity often varies within quite wide limits. The *anxiety* is also usually continuous, but if continuous it is paroxysmally intensified in the majority of patients. Therefore attacks of anxiety may be spoken of in most cases. They occur especially in the morning and after meals (very often during the repose after dinner), somewhat more rarely in the evening and at night. Occasionally they occur directly on awaking. While simple depression as a rule is not accompanied by physical sensations, they are rarely absent in anxiety. In many cases the patients say they feel the anxiety in the cardiac region, over the whole chest or in the gastric region, and have the feeling of oppression; this form of anxiety is called præcordial fear. Others feel the anxiety in the head or throat especially. In the first case I have heard the statement that the anxiety is attended by a feeling of dizziness or vertigo. The usual attendant physical sensation of laryngeal anxiety is that of morbid constriction about the neck. It is very often said that the anxiety in the chest rises to the head like a hot current. Localization of anxiety in the abdomen is not at all rare. In one case in which worry about an entirely harmless and almost cured cystitis had induced the melancholia, the patient always very positively referred her anxiety to the region of the bladder. Localization of the anxiety in the extremities is more rare. The patient mentioned above with retroflexion felt her anxiety in the lower extremities especially. In one case—without evident cause—I observed the anxiety localized in one arm. The duration of the individual attacks of anxiety varies within the widest limits, it may last for a minute or for hours.

In many patients the depression is accompanied by anxiety from the first, in others the depression with anxiety is preceded by a stage of pure depression (without anxiety).

The *inhibited association* is not always equally marked. It is manifested as well in retarded flow of thought as in retarded voluntary movements. Only the movements and ideas induced by the anxiety are unaffected by the generally inhibited association. This explains why patients who do not or only very slowly answer the simplest questions as to themselves, the multiplication table or history of their native land, and do not or very slowly perform the simplest movements required of them, fluently complain

of their intense anxiety for minutes or hours, throw themselves about or commit suicide with the greatest celerity.

The *delusions* of melancholia are secondary, in that they occur subsequently to the emotional disturbance (depression and anxiety), and depend on it, the anxiety especially. They have been called efforts to explain the anxiety. If the melancholiac has the delusion of having committed murder, the psychological process is thought to occur as follows: the patient notes his anxiety, reflects that the guilty are usually anxious, and so concludes that he must be guilty. Yet in reality the origin of the melancholiac's delusion is rarely so logical. Patients occasionally say they feel a "heart pain as though they had a murder on the conscience," and it is then observed that such patients scrutinize their whole past life to see whether they have committed a crime; they light upon some trifling event, which under the influence of their anxiety convinces them more and more of a crime. Still in many cases this unconscious logic is absent. The patient has an accidental experience, he hears something said, observes something about his body, etc., or has a fancy he would not have regarded at all in health. In his morbid depression and anxiety he transforms the assertion or fancy into a delusion. According to my observation this is the most common origin of melancholic delusions. A patient has lost her child. She grieves over it long and deeply. The prodromal symptoms of melancholia are developed more and more. She must repeatedly think about the child's illness, continually wonder why it should have terminated so sadly; very naturally it occurs to her: was something done wrong or neglected? In a normal state of the emotions she would have immediately repelled these questions; but owing to her morbidly changed state the thought at once arises: did you give the medicine promptly? In a normal state of the emotions she would have at once said, the thought is perfectly silly, for if the medicine had once been given behind time this alone could not have caused the fatal termination. Owing to her morbid condition the idea is grasped and retained without reflection. Anxiety takes possession of the thoughts, fashions them into delusions and will not relinquish them. All arguments of the physician and relatives are as powerless as the patient's normal memories. The delusion, by virtue of its foundation on a pathological state of the emotions,

is intensified. When the latter become normal the delusion disappears.

In the course of the disease two states may readily be differentiated: a first of pure depression with anxiety, and a second of depression and anxiety with secondary delusions; then again a stage of pure depression is observed in which anxiety is only sporadic and mild, and a second stage of almost simultaneous invasion of aggravated and intense anxiety with secondary delusions. In the latter case the first stage often appears like a prodromal stage in the sense above stated. Finally it needs to be especially emphasized that not every case of melancholia gravis must lead to secondary delusions. Occasionally a well marked melancholia with intense anxiety and depression is observed without any secondary delusions.

The *import of the delusions* varies greatly, the following being the most common:

a. The delusion of having committed unpardonable sins.

b. Hypochondriacal delusions.

c. Delusions of impending poverty.

The delusion is often directly related to the cause of the disease. This includes *e. g.* the delusional self-accusation of having neglected the care of a sick and deceased relative. The hypochondriacal ideas are usually joined to an accidental observation as to one's own body. I saw a patient who joined to an angina the delusion of "incurable syphilis"; he had in fact been infected with syphilis many years before, but at this time it was an entirely simple angina. Assurances were of no assistance. The complete cure of the angina did not convince him. About every ten minutes he looked into his mouth with a mirror and always believed he found white patches, etc. The delusion disappeared when he recovered from the melancholia. The delusion of impending poverty is often similarly joined to a loss of property, which has been the exciting cause of the disease.

The number of delusions in the single case varies greatly. Many melancholiacs during the whole course of the disease have but one delusion, *e. g.* of having incurable tuberculosis or of having sinned against God, etc., and the delusion is so limited that the patient interprets many events from its standpoint. I knew a patient who claimed to have intestinal erosions and con-

stantly believed she was about to die. If the nurse looked at her she thought it was to see if she was dead. As her pillows were once placed somewhat lower than usual she fancied they would thus put her in the position of a corpse, and many others. Other patients have many, even numerous delusions; some patients present the most diverse self-accusations, or—if more rare—fancy they have a fatal disease. The combination of delusions of sin and poverty (*e. g.* in masturbators) occurs very frequently. An intensification and remission of the delusions are observed to depend on the variations in the anxiety's intensity.

Occasionally others are added to the above delusions, which are complements of them. I have called these complementary delusions. They are in part complementary delusions of grandeur and in part of persecution. The first are developed according to the psychological law of contrast. To very forcibly display his momentary fault, sickness or poverty, the patient claims he has formerly been extremely good, healthy or rich. In a theological candidate 23 years old I observed complementary (" contrasting ") delusions of grandeur reminding of the delusion of being the Messiah. He expressed himself as follows: " My life is ruined. I have yielded to the most terrible temptations. I have fled from God. I feel death in my breast. I am the son of depravity, depravity itself, I am the lie. I am the nameless who could have saved the world and have done the opposite. I have cursed myself. The curse rests on me. I become ever smaller. That is the curse of the evil deed. We now would all have been happy had I improved my omnipotence. I was the Holy Ghost. I have killed the Holy Ghost," etc. A female melancholiac said very much the same to me: " I was an angel and now I am the evil spirit." The complementary delusions of persecution are still more frequent. The patient *e. g.* accuses himself of being a perjurer. Eight days later he claims the State's Attorney has issued a warrant for him, the police are on his heels, etc.

As a rule the delusions are not of silly import, in so far as the patient draws correct conclusions from them and is often able to very shrewdly justify them by plausible reasons. Only when congenital imbeciles have melancholia, as occasionally occurs, the congenital intellectual defect naturally is often expressed in their delusions.

In those who have attained full mental development the melancholic delusions are occasionally so extravagant that one might be inclined to assume an intellectual defect, if the reasons alleged for the delusions in these cases did not show the integrity of the intelligence. I cite *e. g.* the following delusions of a melancholiac: "I have betrayed the Virgin Mary. I have betrayed Adam and Eve. I have also betrayed the fields. (In what respect?) I have grazed on the fields which did not belong to me. I have betrayed Jesus and the twelve Apostles. I have abused everything. I have tasted of all the trees of the world. Adam and Eve tasted of only one. I have taken everything from the people. That (pointing to the light of the lamp) means me. The moon and the sun show that I have betrayed them. The world is lost. The sky falls. For I am guilty." French authors have very aptly called such extravagant delusions *délire d'énormité*. Finally the idea of being transformed into animals, the so-called zoanthropic, is occasionally observed. I know a patient *e. g.* who has twice been admitted to the local hospital for typical melancholia. In the first attack he claimed to be changed into a dog; there were also delusions of sin.

With respect to the chief symptoms—depression and anxiety, inhibited association and secondary delusions—the other psychical symptoms are less prominent. *Hallucinations* and *illusions* are not constant or even frequent symptoms of melancholia. They are observed in about a tenth of the cases. They occur late in the disease and only occasionally. Voices are the most common, and especially those the patient fancies he hears within him, in his head, breast or abdomen. Their import usually corresponds with the motives, *i. e.* the delusions arising from them. So "the dear Lord" says *e. g.* to a patient, "You must take your life before morning." The sensory intensity of these voices is not very great usually. The patients are often unable to decide whether God "has merely put the words in their thoughts," or they have actually heard them. Visions (pale faces, ghosts, devils, etc.) and deceptions of the other senses are still more rare.

The *external appearance* presented by melancholiacs is not so uniform and homogeneous as might perhaps be expected from the constancy of the principal symptoms. This owing to the fact that the anxiety very differently affects the motor functions

of different individuals and occasionally the same individual at different times. It intensifies the existing inhibition or inversely produces violent motor excitement, the agitation of anxiety. The inhibition may occur either simply as general resolution or be combined with general spasm of all the muscles. By reason of this diverse motor reaction to the emotional disturbance three forms of melancholia have been differentiated, namely:

1. Melancholia passiva: resolution prevails.
2. Melancholia attonita: muscular spasm prevails.
3. Melancholia agitata: agitation prevails.

In melancholia passiva the patient lies in bed inertly. If an extremity is raised it falls almost like the limb of a corpse. In the most severe case the patient executes no voluntary movements, and in all cases very slowly and apathetically. The most diverse states of spasm are observed in the more rare cases of melancholia attonita. A motionless recumbent posture on the back is very common, while the head is raised spasmodically from the pillow. The patient remains in this posture for hours. The extremities are rigidly extended or flexed. Voluntary movements are even more rare than in the passive form. If movements are required of the patient the spasm ceases for a moment at best, and finally the patient convulsively executes a simple movement required of him. Passive movements meet with strong resistance. The so-called flexibilitas cerea (waxy flexibility) is occasionally observed, *i. e.* the patient's limbs retain any position given them for a time unchanged. In passive melancholia the physiognomy is simply sad, in melancholia attonita it is markedly anxious. The movements of speech in both are just as rare and slow as all other movements. In melancholia attonita absolute mutism of days or weeks' duration often occurs. Melancholia agitata is exactly the opposite. Here the anxiety is stronger than the inhibited association, consequently the most manifold expressions of anxiety occur. In the simplest cases they are limited to low or loud complaints. The patients often bite or pull the tips of their fingers. Other patients scratch and rub sores on the body.[3] Others, so to speak, milk the fingers of one hand with the other. Some wallow about restlessly, others sway

[3] These rubbing motions of anxiety may lead to masturbation. Five of the statistical cases presented such masturbation of anxiety.

the upper part of the body for hours. In the latter case the arms are often implicated in such a way as to give rise to the motion of rowing. Many patients move their legs especially. Occasionally it results in an almost rhythmical alternation of flexion and extension in the large joints of the legs. I have occasionally observed an almost rhythmical alternation of flexion and extension in the joints of the foot, similar to dorsal clonus. Very many patients cannot remain in bed owing to their anxiety. They then wander about restlessly, either complaining or crying. This is called the frenzy of anxiety. Such patients perform movements required of them more often and quicker than patients with the passive or spasmodic forms. Filthy habits are much more common in the latter than in the former. In all three forms food is partaken of very poorly. In the passive and spasmodic form the inhibition interferes with eating; in the agitated form the anxiety does not afford the patient the requisite quiet to eat. Besides, in all three forms delusions often cause partial or complete refusal of food. The patient says: "I am too wicked, I must not eat," "I am too poor, I cannot pay for what I eat," or "I am too sick, food does not agree with me," or "food will no longer benefit me." Suicidal attempts likewise occur in all three forms. They are relatively rarer in the passive form, yet they occasionally occur. They are the most dangerous in melancholia attonita, because the attendant does not expect them in view of the patient's apparent calmness, and so the supervision is readily evaded. In these patients a severe attack of anxiety may very suddenly overcome the inhibition, and a suicidal attempt occur very precipitately. It is to be emphasized that the differentiation of a passive, agitated and spasmodic form is by no means sharp. In many cases a change in the motor condition is observed. Passive, agitated and spasmodic conditions follow each other. Finally, in many mild cases the voluntary movements are not essentially lessened, but on the other hand the agitation is not very intense. Suicidal attempts also occur in such cases quite often.

The anxiety may occasionally cause acts of violence. I recently observed a 60 year old emeritus professor who in a paroxysm of anxiety attacked the attending nurse, seizing her by the throat and choking her. The patient admitted he wished to do

away with her so as then to take his own life. He afterwards recovered completely. Another case came to my knowledge in which a melancholiac suddenly kicked his attendant so hard that he fell senseless, then broke a window and with a piece of the glass severed his radial artery. He died from hemorrhage. It has been frequently observed that mothers who have melancholia kill their children in an attack of anxiety. Incendiarisms have also been observed of melancholiacs (*e. g.* in young servant girls with melancholia). Very indefinite anxious ideas are usually the incentive: all is lost, the world is destroyed, all must perish, etc. A definite idea is more rare: I will save the children from starvation, they shall not be as wicked and miserable as I am, etc. A suicidal attempt usually immediately follows such an infanticide or incendiarism.

Physical symptoms are very rarely absent in melancholia. Sleep is often very poor, and may be entirely absent in the crisis of the disease.

Appetite and hunger are often entirely absent. Without abstinence and without agitation the nutrition is generally very materially lowered. The gastric juice is often, the saliva frequently lessened. A stubborn constipation is almost always present. The bowels may not move for two weeks. The tongue is almost always heavily coated. Intense *foetor ex ore* often exists.

In the passive form the respiration is often retarded. A deep inspiration is very often observed as expression of the anxiety, owing to the attendant sensations of oppression. In the agitated form the respiration is irregularly accelerated, often gasping or wheezing. In one case I have counted 150 respirations per minute for a short period.

In the passive form the heart's action is usually retarded. In one case the pulse sank to 48. In severe attacks of anxiety, especially in the agitated form, it is accelerated. The peripheral arteries are usually much contracted, hence the cold hands of melancholiacs. Amenorrhœa is observed quite often.

The composition of the urine does not seem to be essentially changed.

Neuropathic symptoms strictly are entirely absent. Only when complicated with neurasthenia or hysteria the symptoms common to these diseases must be present.

5. Termination.

The course of typical melancholia is usually continuous, rarely remits, and usually lasts 4 to 6 months—provided the treatment was seasonable and proper. Occasionally, especially when the treatment was late and improper, the disease may last 9 months, 1 year, and even longer. Those cases which present few intense symptoms often require a particularly long time for recovery. The transition into convalescence is occasionally almost critical. In the severest cases this is not rare. Occasionally convalescence is simultaneous with the re-establishment of the menses absent at the height of the disease. In other cases the delusions, emotional disturbances and inhibition gradually subside. Mild exacerbations are frequent during convalescence. A complete relapse rarely occurs immediately after or during convalescence.

A post stage is often developed in the sense of the so-called reactive "hyperthymia," *i. e.* a mild exhilaration increased to morbidness. The patients are inordinately cheerful and active, talk, work and scheme more than when they were well. In a few days or weeks this reactive emotional disturbance disappears.

Besides complete recovery the following terminations are observed:

1. In recovery with defect.
2. In death (intercurrent diseases, suicide).
3. In secondary dementia.
4. In chronic melancholia.
5. In secondary paranoia.

Under hospital treatment about 90 per cent. of all cases recover completely. The actual percentage of recoveries is more unfavorable, simply because the relatives do not send them to the hospital early enough or the patients are removed too soon. Of five cases belonging to the latter category I definitely learned that the patients later died by suicide. Outside of the hospital unfavorable terminations are much more common, especially the fatal one by suicide. Of the 238 melancholiacs admitted there were 38 in whom an almost successful suicidal attempt had immediately preceded the admission. We do not have reliable statistics of successful suicides of melancholiacs outside of the hospital. In the hospital one case committed suicide in spite of all the

precautions. Of the intercurrent diseases pneumonia is especially dangerous to senile melancholiacs (3 fatal cases).

Recovery with defect is a more rare termination. The emotional disturbances, inhibitions and delusions disappear, but a careful comparison shows that the patient has sustained a slight intellectual injury. Complicated ideas and combinations of judgment are lost to him by the disease. This slight defect usually escapes entirely the laity. Equally rare is the termination in secondary dementia. Here a progressive intellectual enfeeblement occurs, which may result in complete dementia. The termination in chronic melancholia is somewhat more frequent. In these cases memory and judgment remain intact. The emotional disorder only partly disappears. Violent attacks of anxiety become less and less frequent, being replaced by a morbid complaining. Thought inhibition is lessened to a certain degree, but a lasting inhibition still controls the actions; the patients are irresolute and apathetic and so incapable of action. Many indulge in monotonous complaining and fruitless self-accusations. Finally the termination in secondary paranoia is not common. I have observed only three such cases, two being included in the above cases. This termination is characterized by numerous hallucinations and persecutory ideas occurring gradually or suddenly, while the primary emotional disturbance, the thought inhibition and melancholic delusions become more and more dim. The intelligence remains intact. Of the three cases I have seen two pass into chronic hallucinatory paranoia; one in whom the transformation of the disease type occurred very suddenly, recovered completely.

From what has been said it is seen that the prognosis of melancholia in general is very favorable. Why in some few cases termination with defect, secondary dementia, secondary paranoia or chronic melancholia occurs instead of recovery, cannot to-day be definitely stated. Occasionally an improper treatment or lateness of proper treatment is really responsible. Hereditary taint appears to be unimportant in the prognosis with respect to the single attack. Individuals who were irresolute and somewhat dull before the disease seem predisposed to a termination in chronic melancholia. Severe melancholia occasionally recovers very quickly in debilitated individuals.

The prognosis is significantly affected unfavorably by the tendency of melancholia to relapse. Not a few completely recovered melancholiacs succumb to melancholia again from the effect of corresponding pernicious agencies. The prognosis of this relapse is in itself no worse than that of the first attack. The relapse often occurs 10, 20 and even 30 years later, occasionally in 6 months or 1 year. This depends especially on the effect or non-effect of the etiological factors, which were enumerated above. The frequency of relapse is shown the most strikingly by the fact that among the 238 cases there are 34 in which one attack of melancholia preceded, two in 13, and 5 in which more than two attacks had preceded. Periodical melancholiacs (see below) are not included. These figures show that relapses occur in almost 22 per cent., and this evidently would be still higher if the statistics embraced a longer period.

6. Varieties.

The varieties known as melancholia passiva, attonita and agitata have already been described. On the basis of the character of the secondary delusions a melancholia hypochondria, religiosa, etc., have often been differentiated. The differentiation of several other varieties is more important, which will now be described.

a. *Melancholic Depression or Hypomelancholia.*

This is the form of melancholia in which depression and inhibited association are the chief symptoms. The anxiety characteristic of melancholia gravis, as well as the secondary delusions, are entirely absent or occur only now and then without great intensity. For the practicing physician it is just as important as the chief form, because very many of these cases never reach the hospital, but remain at home under the family physician's care. In fact, among the 238 cases which were received at the psychiatric clinic during the period stated, there were only 5 cases of hypomelancholia. All 5 were men between 30 and 60 years of age. My experience outside of the clinic confirms the decided preponderance of the male sex. The special cause of the attack is usually overwork and mental excitement (change of occupation, loss of property, engagement to be married, etc.). The

development is usually quite slow. The whole world appears to the patient in gloomy colors. His occupation, his family, his favorites are repugnant to him. His regard for occupation, cleanliness and personal appearance seems extinct. The inhibited association is chiefly manifested in a retardation of mental work. These patients answer simple questions quite quickly, but it is extremely hard for them to write a letter, read a book or fully comprehend a long train of ideas. I have the autobiography of such a patient, wherein he complains that he now cannot do the work in eight hours he once did in one. Yet the simple individual movements of these patients are not inhibited—contrary to melancholia gravis; whereas all complicated, co-ordinated, continuous motor acts are perceptibly retarded. This is noticeable in their writing. The patient's thoughts are not only retarded in his writing, but the writing itself is less easy. Tradespeople spontaneously complain that their writing is less legible. A comparison of the writing before the disease with that of the present confirms this. This symptom is very marked in the patient's gait; they drag their feet, take short steps, walk slowly. From the emotional disturbance and inhibited association another symptom arises, which is usually noticed by the laity—their irresolution or abulia. The depressive tone of feeling affects their self-consciousness. In melancholia gravis it induces the most pronounced micromania (delusions of sin, sickness, poverty); in hypomelancholia it only causes a pathological lack of self-confidence. Yet, in conjunction with inhibited association, this fully suffices to hinder all energetic action. The patients cannot make the simplest decisions. In dressing they cannot choose between their garments, they are unable to make the simplest decisions in their house-work. I know patients who could not, or only after very prolonged hesitancy, decide to go into a store and ask for something. Decisions in business (professional decisions, etc.) are impossible. If the patients have finally reached a decision they immediately regret it, to again at once regret having recalled it. Letters, which have been written after many efforts, are repeatedly destroyed, and finally, if they are fortunate enough to reach the letter-box, are reclaimed from the post. In this state of affairs it is no wonder that such patients neglect their toilet, house-work, occupation, fail to answer urgent letters or

meet their appointments, no longer keep their books and accounts, remain in bed until noon or even longer, etc. The physical symptoms are very trifling. The sphygmograph occasionally shows a slight contraction of the peripheral arteries. Gastric disturbances are common, as well as constipation. Occasionally sleep is wholly undisturbed. The patients sometimes complain of mild head pressure.

The course is always very protracted. It often extends over more than a year. The termination is recovery or—more rarely—a transition into chronic hypomelancholia. After a very protracted course recovery occasionally occurs in a few days. The tendency to relapses is very great.

b. *The Apathetic Variety.*

It may occur as well in melancholia gravis as melancholia levis. The patient's depression and anxiety are mere morbid apathy. The patient's fundamental feeling is motiveless dejection with or without anxiety, but they complain especially that their normal tone of feeling and the positive and negative are gone. Their nearest relatives have become entirely indifferent to them. They complain that they "have a stone instead of a heart in their breast." They reproach themselves that even the news of a death leaves them perfectly indifferent, and on this basis found new delusions of sin. In their external conduct these patients usually present the picture of melancholic depression or melancholia passiva. The prognosis of this form is very favorable; the course is usually somewhat more protracted than in melancholia gravis.

c. *The Hallucinatory Variety.*

In typical melancholia hallucinations do not occur at all or only sporadically or accessorily. In the hallucinatory variety delusions or hallucinations are more frequent and indicative of the disease type and its course. Strong hereditary taint and advanced age are the most predisposing to this form, yet it is not especially common. Among the 238 cases there were only three of this variety.

d. *With Imperative Conceptions.*

In this variety imperative conceptions occur during the course of the melancholia. The impression exists that they replace the

melancholic delusions and occur with them. A young girl who became ill with melancholia at the time of her wedding had the imperative conception that she must call her father a "rascal." She could not get rid of the idea during the greatest part of her melancholia and united various self-accusations to it. On recovery or just before it the imperative conception disappeared completely. In a pregnant melancholiac I observed the imperative conception that she must kill her children. The patient was fully conscious of the absurdity and criminality of such action and the morbidness of the thought, but was unable to suppress it during her melancholia. I have seen suicidal thoughts occur in two cases in form of a typical imperative conception during the course of a melancholia. In another case arithmomaniac imperative conceptions existed. Finally in one of the latter the patient, whose melancholia had immediately followed the death of her father, could not get rid of the imperative conception that she had poisoned his sausage and so caused his death. Here it was not a question of a delusion, for the patient knew very well that her father had died from apoplexy and admitted the absurdity of her idea, yet it imperatively continued as long as the melancholia and caused the existing anxiety to be increased in spite of her better knowledge. The prognosis of this form with respect to complete recovery seems to me less favorable.

e. *The Neurasthenic Variety.*

One may differentiate between a melancholia which occurs in a patient who has long been a neurasthenic, and a melancholia which, besides the typical symptoms of melancholia, present those of neurasthenia also. In the first case it is a matter of complication of neurasthenia with melancholia; in the latter a mixture or transition type between neurasthenia and melancholia. I regard the first as very rare, the latter as quite frequent, especially in males. Among the 238 hospital admissions I find 12 cases; in private practice they are much more common. The peculiar mixture of melancholic dejection with neurasthenic irritability is the most characteristic. Now the first is most prominent, then the latter. The course is usually tedious. Quite often it follows a chronic neurasthenic.

f. *The Hysterical Variety.*

Here it is always the matter of the complication of hysteria with melancholia. The hysteria has long existed, and by the effect of special pernicious factors a melancholia is added. It is not of frequent occurrence. Among the 238 cases there were only two. Both recovered. During the melancholia the symptoms of hysteria remain almost unchanged. The lability of the disposition often penetrates the melancholic depression.

g. *Periodical Melancholia.*

This variety, characterized by its course, has been too little considered. Among the 238 melancholiacs there were only 5. Six other cases I have seen and treated privately. I am convinced that the majority of these cases run their course outside of the hospital. The regular recurrence of a melancholic attack at approximately equal intervals is characteristic. Usually it is of a mild or mediumly severe type. In one case the attack occurred at 11, but usually in middle life and especially at the climacteric. Of my 11 cases 4 were men. The duration of the attack and the interval vary greatly in different cases and are not always the same in the same case. A post stage of days, weeks, even months is not rare. The attacks most commonly occur at intervals of about a year. Under very improper treatment the interval between two attacks may occasionally disappear, *i. e.* the first attack is not over before the following begins. It is remarkable that in the first half of the interval, and even later, intense emotions do not cause a recurrence, while toward the end of the interval a relatively mild emotional shock or other injury induces the new attack. Quite often the new attack occurs without apparent cause. Delusions are often wholly absent; when present they are usually approximately the same in each attack. In spite of careful investigation I was unable to prove hereditary taint in 3 cases. In the other cases it was scarcely as strong on the average as in the non-periodic tainted cases. The outbreak of the individual attack is often peracute. In one case it was attended by glycosuria. The prognosis of the individual attack is very favorable; the prevention of further attacks always fails. By careful regulation of the mode of life it is possible to postpone

the impending attack. The further development into circular insanity occurs rarely or not at all. In one case mania once followed a specially severe attack of melancholia, as in periodical mania a melancholia occasionally follows a specially severe attack of mania. The post stage of reactive hyperthymia may occur, but is very often absent. In one case the periodical melancholia had existed 37 years.

7. Diagnosis.

a. *Indicative symptoms.* Many cases of melancholia will be overlooked by the physician because he does not consider the possibility of a psychical disease. The physician regards the patient's depression as the natural consequence of existing physical troubles, a past or existing mental shock from deaths, etc. As a rule, however, a persistent dejection, if it seems to have a cause, should never be assumed to be physiological without further investigation, but the possibility at least must always be considered that a melancholia exists. Other symptoms, which sometimes cause astonishment and should always awaken a suspicion of melancholia, are the following: marked neglect of the toilet, business cares and household duties, restlessness, retarded mental functions, etc. A melancholia will not always be the cause of these symptoms, but often of another psychosis or of no psychosis; still they often enough depend on melancholia and so imperatively demand consideration in this respect. The suspicion naturally becomes more certain when there is no cause for the dejection, when the patient complains of his motiveless anxiety, when he utters groundless self-accusations and has ideas of poverty and hypochondriacal fancies. Still a melancholia does not always exist (see differential diagnosis), but very often. The physician who does not now examine as to melancholia and give corresponding instructions commits just as important and grave an error as he who examines a woman in labor without disinfecting his hands. In both cases he jeopardizes in an equal manner a person's life by gross neglect. Here suicide, there puerperal infection threaten in about an equal degree.

b. *Method of diagnosis.* I assume that the physician has found a motiveless, or at least an insufficiently motived, persistent dejection in a patient. How can he now determine whether real

disease and whether melancholia actually exists? I may in a general way recommend the following series of questions. The answers to be expected, if melancholia exists, I will always subjoin.[1]

Are you gloomy? The melancholiac will always answer yes; a concealment of the disease symptoms is very rare in melancholia. It is then best for the next question to be: are you always dejected or are you occasionally cheerful? The melancholiac admits a constant dejection. At the most in mild cases he says he can occasionally be somewhat cheerful, yet it does not come from his heart, or something similar.

Are you anxious? If the patient suffers from melancholic depression he will answer in the negative. If melancholia gravis exists he will answer affirmatively. As a precaution at least it is to be asked: *have you of late (or for weeks or months, as long as the depression existed) occasionally been anxious?* It is to be remembered that the anxiety of melancholia often occurs paroxysmally.

Then it is best to immediately ask: *where do you feel the anxiety?* Many melancholiacs do not admit a definite localization, whereas some expressly state the cardiac region, the head or abdomen, etc. (see above), as the seat or location of the anxiety.

Why are you sad? Why are you anxious? These questions are of decisive importance. The melancholiac either says the dejection and anxiety have no cause ("come of themselves") or he ascribes his dejection and possibly his anxiety to the mental shocks preceding the disease (death, loss of money, etc., see etiology), or he refers the anxiety and dejection to a fancied crime, disease or poverty. The significance of the first answer is evident; if the patient knows no cause for his dejection and anxiety, they are at any rate characteristic of melancholia, primary depression and anxiety. If the patient makes the second answer, *i. e.* if he refers his dejection to mental shocks which have

[1] Of course these questions are somewhat schematic. They will have to be changed somewhat to correspond to the individual case and position of the patient, etc. First of all, question slowly as to the thought inhibition and wait patiently for the answer. Possibly the question will have to be frequently repeated or another question interjected: did you understand my question?

actually preceded the disease, then these mental shocks must be carefully inquired into, either through the patient himself or his relatives. It is then to be considered whether the existing dejection corresponds in its duration and intensity to the unfortunate event or exceeds the physiological limits. So the relatives should be asked as to how the patient formerly behaved under like circumstances. It will often enough be learned that in similar cases he has been somewhat dejected for a time, but never so long or so intensely. Ask the patient: *are you sad only when you think about this misfortune, or otherwise?* The patient often answers very correctly now "all is gloomy to him." If, besides the dejection, anxiety also exists, the stated misfortune only suffices to cause the first, his anxiety is without a motive. The patient's attention can be called to this gap by saying to him quietly: *I well appreciate your dejection, but why are you anxious?* Many patients then admit its lack of foundation, and so the primary emotional disorder characteristic of melancholia is proven. If, finally, the patient cites his crimes, sickness or poverty as a cause, it is to be determined whether his self-accusations, his fear of illness or his financial worry have an actual foundation or not. In regard to the self-accusation, an inquiry of the relatives quickly settles the matter usually. Still in many cases it is better to let the patient relate the stated circumstance in all its details (frequently the patient's delusion is thus disowned) and he at once admits "it seems to him so in his anxiety." Such a confession may often enough be drawn out of the patient by energetic questions, to be again recalled in the next severe attack of anxiety. As above stated the self-accusation is often united to an actual occurrence and represents only an exaggeration of the latter (for examples see above). This exaggeration is the most easily determined by letting the patient relate all the details of the event which has relation to it. The fact, which is the basis of his fear of disease, is ascertained by a careful physical examination. In case it is a melancholiac's fear of disease, the glaring disproportion between the actual condition and the patient's solicitude will quickly show that the latter is pathological. We proceed in the same way in regard to complaints of poverty. The patient is induced to state his financial condition in all its details, and his statements are verified by questioning his rela-

tives. If melancholia exists the fear of poverty is shown to be wholly unfounded or exaggerated.[5] Thus is it determined that the person's ideas of guilt, sickness or poverty are morbid; still it is to be ascertained whether they have the character of melancholic delusions. The chief sign of melancholic delusions is their secondary origin from emotional disorders. Hence the patient has to be further questioned as to their origin. For this purpose the following questions are proper: *when did your guilt, sickness, poverty become evident to you?* or *was it since you were gloomy and anxious that your guilt, sickness, etc., i. e. the gravity of your guilt, sickness or poverty, became evident to you?* If melancholia exists it is shown that the dejection and often the anxiety had long preceded the delusions.

All of the above remarks are united in the question: *why are you dejected, why are you anxious?* It is now best to ask the further double question: *how long have you been so dejected, since when have you been so anxious?* In this way it is at once ascertained whether the case is acute or chronic.

Are you irritable also? It is best to ask this question on conclusion of testing the emotions. In pure melancholia the answer is always no; in the neurasthenic variety yes usually. Supplementary questions: *how is your interest in your occupation, as well as in your family, your love for your relatives?* may here be of importance as to the possible existence of the apathetic variety. If the latter exists the patient will complain of his pathological indifference. If the principal form of melancholia is present the patient will rather emphasize that everything is gloomy to him.

The next questions refer to the thought inhibition. In many patients the slowness of their answers saves all further questions; in others ask definitely: *is it hard for you to think?* The majority of the patients answer yes. In only a few cases, when the thought inhibition is even less pronounced, irresolute, uncertain answers may be given. The question as to occupation may be specially

[5] In rare cases a crime, a severe physical disease or poverty actually exists and a true melancholia at the same time. The past in such cases affords the patient at present sufficient actual material for anxious concepts; in a certain measure he does not need to look about for delusions. Twice I have seen a typical melancholia after defalcations (after serving a sentence), once in carcinoma, and once in complete sudden poverty.

formulated, *e. g. do you now understand what you read as quickly as formerly?* or *can you finish your book now as quickly as you once could?* etc. The question may be added: *what interferes with your thoughts so much?* As a rule the melancholiac knows of no cause or refers it to his dejection, *i. e.* his anxiety.

If the patient did not manifest his delusions in the question, why are you gloomy, why anxious? now ask directly: *do gloomy, anxious thoughts come to you in your dejection, in your anxiety?* It is best to be cautious in asking direct questions as to the ideas of sin, sickness, poverty, as such direct questions readily awaken these ideas in the patient. If the patient has melancholic delusions, then ask: *since when did you have such thoughts?* and ascertain, as above directed, if of secondary origin from the emotional disorder. It may surely be asked: *do you often have mistrustful thoughts?* The large majority of melancholiacs will answer no; only the rare cases included in the symptomalogical description will admit one or another delusion of persecution.

By several short questions it is now to be determined whether the patient has sense deceptions. Then ask *e. g.* whether he has heard or still hears strange "enigmatical" words from unseen voices of persons absent, whether he has seen or still sees strange forms or images, "dream fancies while awake," whether he perceives strange noises, a strange taste to his food, etc. Nine-tenths of melancholiacs will reply negatively to all these questions, one-tenth affirmatively. In this one-tenth it can easily be ascertained by a few questions that the stated hallucinations or illusions have occurred only occasionally and in the later course of the disease, at any rate after the emotional disorder. This fact is essential for the diagnosis of melancholia in the presence of sense deceptions. If it is found that the hallucinations occurred later than the emotional disorder, but still have been numerous, then the variety known as melancholia hallucinatoria exists.

The next questions should refer to the patient's intellectual condition, when it is to be ascertained whether his memory and judgment are intact. Still it will be found that he does not answer many such questions or only very slowly owing to his thought inhibition, in spite of intact intelligence. Hence I would advise questioning the relatives. Ask especially: *had the patient been forgetful before he became so dejected or anxious, did he act indis-*

crectly (ethical defects), did he err in his instructions, in his book-keeping, did he tell the same stories repeatedly, etc.? If melancholia exists all this is denied; what the relatives relate of neglect, etc., after the occurrence of the emotional disorder only proves thought inhibition and apathy, but not intellectual defect.

The last questions refer to the patient's actions. He or his relatives are to be questioned if he dresses and washes himself as usual (neglect of toilet), if he performs his duties to his family and business, if he is just as solicitous of his interests as formerly, if he eats, sleeps regularly, etc. In regard to the morbid indecision it is best to question the patient directly: *is it hard for you now to make decisions, give orders, etc.?* The answers to be expected when melancholia as well as hypochondria exists readily show the symptomatic condition.

By the preceding examination of the patient it is ascertained that the psychical type of melancholia exists, *i. e.* that the psychopathic symptoms of the case correspond to those of melancholia. This does not suffice for the diagnosis of melancholia. It now needs to be especially proven that the physical, neuropathic condition does not contradict the diagnosis of "melancholia." Melancholia exists when the psychopathic symptoms fully accord with the diagnosis of a melancholia, but not when certain neuropathic symptoms are present which indicate an organic brain disease. The following symptoms especially never occur in melancholia:

Speech disorders (hesitating enunciation, misplacement of consonants and syllables).

Paralysis of the various muscles.

Failure of the pupils to react to light.

Inequality or absence of the knee jerk or ankle clonus.

When these symptoms have been excluded by a careful examination the diagnosis of melancholia may be made.

c. *Differential diagnosis.* For the practicing physician especially, the possibility of confounding melancholia with the following psychoses[6] is obvious.

1. *With dementia paralytica.* In the course of dementia paralytica a stage very often occurs whose psychopathic symptoms are

[6] See my text-book, Psychiatrie, Berlin, 1894, pp. 413, 341, etc.

almost the exact counterpart of those of melancholia. This is called the depression stage of dementia paralytica. In men of middle age especially, who have previously been infected with syphilis, it is necessary to be very cautious in diagnosing melancholia in case depression exists; for the male sex, middle age and syphilitic infection specially predispose to dementia paralytica. A thorough neuropathological examination is of prime importance for a certain differential diagnosis. If one or both pupils fail to respond to light, if the knee jerk or ankle clonus is markedly weakened, or there is an inequality between the right and left knee jerk; further, if there is an evident difference in the innervation of the two sides of the face, tongue, or between the two extremities, occurring during the course of the present disease (not congenital); finally, if a speech defect (hesitation in pronouncing initial consonants, omission and transposal of individual consonants and whole syllables) is developed during the course of the disease melancholia is thus excluded and dementia paralytica is to be assumed. Any one of these symptoms suffices to exclude melancholia and turn the diagnosis to dementia paralytica. On the other hand, the absence of all these symptoms by no means excludes dementia paralytica with certainty, for there are cases of this disease in which the physical symptoms are absent for a long time and only the psychopathic symptoms are evident. Hence the condition of the intellect must be taken into account. In melancholia there is only thought inhibition, the intellect is intact; in dementia paralytica an intellectual defect always exists, which is early shown in the deterioration of the ethical ideas in the broadest sense, and is manifested in indiscretion, lack of judgment, immorality, etc. In doubtful cases always question the relatives, as above advised, whether forgetfulness, indiscretions, etc., had occurred prior to the emotional disorder. I remember a merchant whom I first examined during great depression. A direct test of the intellect was impossible, for in his pathological anxiety he could not be induced to answer questions. Syphilis was not determinable. A very careful physical examination failed to reveal any suspicious symptoms. His wife stated positively that before the development of the present depression he had told her the same stories two or three times in one day, while he had conducted his business affairs and other

matters with perfect correctness. The further course confirmed that it was a case of dementia paralytica; in a few months the typical physical symptoms occurred, the intellectual defect became very apparent. Likewise immorality, indiscretion, etc., are suspicious, in that they are not compatible with the melancholiac's apathy. The paretic in the incipient stage of his disease positively transgresses customs, laws, morals, etc., but not from neglect like the melancholiac. Also in regard to neglect the condition is entirely different. Neglect of toilet *e. g.* appears in both, in the paretic and in the melancholiac. But how differently the two behave when censured for their remissness! Owing to his intellectual defect the paretic has usually lost entirely all comprehension of his fault, while the melancholiac is fully conscious of it and laments that he has become so indifferent.[7]

The contents of the delusions are often indicative. The paretic delusions of anxiety betray by their silly extravagance and lack of connection, by their contradiction and scanty motives, the dementia being developed. The melancholiac's delusions of anxiety are occasionally extravagant. The melancholiac often claims he has made the whole world miserable, eternally robbed it of its happiness, etc., but he cannot readily be brought to the claims of the paretic; he has stifled the whole world in his filth. In respect to censures the melancholiac tries shrewdly to defend his delusions or he appeals very pertinently to his anxiety; the paretic usually is capable of only an apparent defense. Hypochondriacal delusions of physical diminution—"I am only a finger tall"—closure of the natural orifices of the body—"my mouth, my anus has grown up, feces have collected in my intestines for years"—and the disappearance of whole organs—"my lungs are gone, my tongue is lost," etc., are especially indicative of dementia paralytica. However, a decisive importance is not to be ascribed to the contents of the delusions, for occasionally they also occur in hypochondriacal melancholia.

One must avoid confounding the thought inhibition of melancholia with intellectual defect. If a patient in a state of depression does not answer at all or very slowly the simplest questions as to the multiplication table, as to the name and age of his

[7] See Hoche, Die Frühdiagnoses der progressive Paralyses.

children, intellectual defect does not need to exist, for the whole condition may be due to intense thought inhibition. The failure to answer must be used with the greatest caution in favor of the diagnosis of dementia paralytica; only the mental enfeeblement shown in the answers given is directly and certainly of value. Hence it is best, as already advised, instead of testing the patient's apparent intellectual condition, to ascertain from his relatives whether a defect existed prior to the present depression.

The differential diagnosis between melancholia and dementia paralytica thus depends first on the physical condition, and second on the proof of an intellectual defect. If all the precautions mentioned are observed a certain decision is almost always to be arrived at.

2. With *simple chronic paranoia.* When delusions of persecution (see above) occur in melancholia they are often very similar to those of paranoia. The differential diagnosis is easy by asking the patient directly if he deserves the presumed persecutions. The melancholiac replies: yes, I have sinned grievously, etc., I deserve punishment; the paranoiac indignantly asserts his innocence.

3. With *acute hallucinatory paranoia.* In a patient with intense anxiety, be it anxious agitation, be it a stuporous condition, the question arises especially whether the anxiety is not due to hallucinations and so not melancholiac, but an acute hallucinatory paranoia. We know that terrifying sense deceptions often occur in the latter and prodromal stages of anxiety which outwardly are exactly like those of melancholia. The real distinction, alike for prognosis and treatment, is that in the first case—in hallucinatory paranoia—the anxiety arises from the hallucinations, while in melancholia it is wholly independent, primary. How can this be ascertained in the examination of the patient? Owing to the patient's agitation or stupor little is to be gotten from him. His facial expression teaches more. In both patients the anxiety is depicted, but in paranoia a listening or visionary expression is added. The eyes are either fixed on vacuity, the patient inclines his head to one side as though listening or he suddenly turns to the right or left. Besides in acute hallucinatory paranoia other hallucinations now and then occur in those cases in which the terrifying variety prevails. Hence it is observed that the attacks of anxiety are frequently interrupted by states of exaltation or

outbreaks of anger. Finally the anamnesis affords an excellent aid in differential diagnosis, by asking the relatives how the disease developed. If it is a case of melancholia it is learned that first a motiveless dejection occurred; if it is a case of acute hallucinatory paranoia the disease begins acutely with sense deceptions or preceded by a brief stage of distrust. Also ask the patient: are you anxious because you hear threatening voices, see horrible forms, etc.?, which will often be decisive.

4. With *neurasthenia.* When the transition forms are excluded the differentiation is not difficult. The neurasthenic's emotional disorder consists principally of a pathological irritability; the melancholiac's of a pathological dejection. The simple question, is the tone of feeling chiefly irritable or depressed? usually suffices for the differentiation between neurasthenia and melancholia. The majority of patients give a perfectly clear and definite answer. Still it must be remembered that temporary dejection and temporary anxiety also occur in neurasthenia.

5. With *senile dementia.* In old age—that of 60—one should be cautious of diagnosing melancholia. Senile dementia very often presents a stage of depression with intense anxiety which is very similar to that of melancholia. The differentiation usually depends on the anamnesis; it must be ascertained whether forgetfulness, weakness of judgment, ethical defects have been observed previous to the stage of depression and anxiety. Absence of such premonitory symptoms permits the diagnosis of melancholia.

8. Treatment.

The physician's duty in the treatment of melancholia is threefold. It embraces:

a. *The decision whether the melancholiac shall be treated at home or in a hospital, and in what one.*

b. *The treatment of the patient*—in severe cases—*until the commitment to an institution;* in most parts of Germany one to two weeks elapse, in which an improper treatment causes many incurables, while proper treatment may be of great assistance to that of the hospital.

c. *The continued treatment of many cases of so-called melancholic depression or hypomelancholia.*

In the following pages these three conditions will each be discussed in detail.

a. *Decision as to the Place of Treatment.*

It is to be considered a universal rule that admissions to a hospital must ensue in all cases of melancholia which manifest real anxiety. Suicide is always the greatest danger in melancholia. It is always the gravest when anxiety accompanies the dejection. Hypomelancholia in which anxiety is absent very rarely causes suicidal attempts; simple dejection without anxiety is insufficient to lead the patient to suicide; his abulia interferes with the determination. It is different in melancholia gravis with anxiety. Here suicidal attempts are very frequent. In a third of all the cases at least it is to be expected that the patient will attempt suicide at a favorable moment. Hence the general rule: in real anxiety, commitment to a hospital where there is a possibility of care and intelligent supervision, and so the prevention of suicide is secured. Alas! this rule is very frequently transgressed. Consequently the numerous suicides effected by melancholiacs whom the physician has neglected or hesitated to send to a hospital in spite of the presence of anxiety. Exact statistics are wanting, but an approximate conclusion is permitted by the fact, that of the 238 melancholiacs who were received at the psychiatric clinic from 1886-1894, 38 were owing to suicidal attempts fortunately thwarted by mere accident. In the majority of these 38 cases it can be proven that the attending physician had unwarrantably postponed sending them to the hospital. Owing to our physicians' lack of knowledge of psychiatry the suicidal attempt is usually the first intimation of the presence of a melancholia and its significance.

Besides, the physician is usually able to fully inform himself as to the danger of suicide by a direct simple question. Ask the patient, "Do you feel tired of living?" The majority of melancholiacs do not dissemble, and in replying to this question, which possibly is to be often repeated, state their suicidal thoughts. A false reserve often prevents the physician from asking this question. He believes he will thus excite such thoughts or perhaps vex the patient. I have never observed any harm from this question; on the contrary, it has more often been a relief to the

patients to communicate to the physician the suicidal thoughts tormenting them, and affords the physician a certain foundation for therapeutic measures.

From the rule that anxiety should cause the physician to send the melancholiac to the hospital as quickly as possible, I know of only one exception: when the surroundings—residence, property, etc.—are so favorable that the patient can be given as careful supervision at home as in a hospital, and the physician likewise possesses the requisite experience in the treatment of melancholia, the home treatment of melancholia may then be attempted. The requisite possibility of careful supervision refers to two things especially: first, for the accommodation of the patient a room on the ground floor must be at his disposal; and, second, a trained attendant must be had for constant supervision.

This exceptional case shows that the rule is very general; anxiety—commitment to a hospital. The choice of the hospital is not difficult. In the majority of cases the public insane hospital is all there is. Ordinary hospitals are wholly unfit. I have known many cases where suicidal attempts were made and often successfully in them. If it is a well-to-do patient a private insane hospital naturally should be chosen. Many so-called private sanitariums are adapted to milder cases in which the anxiety does not cause loud lamentations and ravings, also for many cases of melancholia passiva, especially when the patient's means are sufficient to pay for admission to such an institution as well as for a very essential private attendant.

The commitment is to be hurried as much as possible. The patients may be sent to some institutions at once without the prior consent of the authorities, merely on the physician's statement. In others the consent of the authorities must first be obtained. It is not only the physician's duty to hasten this matter as much as possible, but also to do his part toward removing these obstructive stipulations endangering the patient.

b. *Treatment of Melancholia Gravis until Admission to the Hospital.*

The chief purpose of this treatment, when melancholia exists, is, first, the prevention of suicide, and, second, the provisional introduction of a proper treatment of the disease.

For the fulfillment of the first obligation—prevention of suicide

—the following orders are essential, which are to be given immediately after the diagnosis of melancholia has been made. First of all the patient is to be put in a room on the ground floor, if possible. Suicide by jumping from the windows is to be especially feared. If a room on the ground floor cannot be given the patient, at least fasten the windows so that the patient cannot open them. For ventilation it is to be arranged so that only the upper sash can be opened, and this only when the attendant sits close beside the patient. Also the provision of screens to prevent a jump from the window is to be considered; the screens must be locked so that the patient cannot open them.

The door of the patient's room likewise needs a lock. It has often happened that a patient, in spite of the attendant's constant presence, has suddenly run out of the room and either jumped from a window of an adjoining room, has thrown himself down the stairs, or has run to the nearest pond or tree to drown or hang himself. In such cases the attendant is often too late. When such fears are justified the attendant should fasten the door on the inside and so that the patient cannot unlock it, but so that it still may be opened from without. This is necessary because the attendant occasionally needs help quickly with a very excited melancholiac and is unable to open the door for persons coming to his assistance in a struggle with the patient.

Under all circumstances the patients are to be kept in bed constantly. This makes their care easier and is also advantageous in the treatment of the disease (see below). The patient's abode is not to be left until he is in bed. The physical examination offers a good reason for putting him in bed. The clothing had better be entirely removed from the room. Be especially sure that the patient has not taken a knife, scissors, a piece of glass or a cord to bed with him. I have more than once found in the melancholiac's pocket or bed a cord, scissors or knife. In one case I found a pair of scissors in the patient's vagina! It is well to make the bed twice a day, under the pretext of airing and straightening it.

A constant supervision of the patient is to be arranged for. If the patient is left alone, in spite of the above precautions—a room on the ground floor, locking the windows, placing in bed, removal of dangerous instruments—a suicide will undoubtedly

occur; the patient will tear a strip from the sheets and hang himself to the door or bedpost, or break out a pane of glass and with a piece of it sever the radial artery, of all of which occurrences every alienist can cite examples. Therefore it is indispensable that a trusty person be with the patient constantly. The patient is not to be left alone for a moment. If the attendant must go away he must wait until relieved by an equally trusted person. A trained attendant is naturally the best, yet such is not usually to be procured. Then choose a trusty person from the patient's neighborhood, and by repeated, detailed instruction, and more often by your own example, seek to overcome his lack of experience. It cannot be too often emphasized that the attendant is not to be deceived by the patient's apparent tranquillity. It is evident that the attendant must be more often relieved when on duty for a longer time, especially when the commitment to the hospital is delayed. It is then best to arrange for a regular change. When possible fix it so that the attendant can get help quickly, as I have already stated. Have some one occupy the adjoining room. A whistle as a signal for help is very good.

Special precautions are further demanded in regard to the patient in eating, going to the closet and during the night. As to eating, order that no knife or fork is to come into the room. Meat, etc., is to brought into the room cut up and eaten by the patient with a spoon. Do not state the real reason to the patient, for it can be made to appear that his digestive derangements render a finer chopping of the meat advisable. If the attendant eats in the patient's room he must also limit himself to a spoon. Disregard of these apparently pedantic precautions has often led to suicide. Only when every sharp instrument is banished from the melancholiac's room is there security. The patient's bowels are to move in his room (bed-pan, vessel, etc.). The necessity of ventilation has already been mentioned. It is best to keep awake at night. It is well for the attendant to fasten the keys of the door and windows about his bare body; otherwise it is to be feared that if he involuntarily goes to sleep, the patient may get the keys and commit suicide. At night a regular relief of the attendant is especially necessary.

The fulfillment of the second factor—*beginning of the proper*

treatment to be continued in the hospital—is almost as important. The recovery of melancholiacs is essentially retarded when their treatment prior to admission was improper or wholly neglected. Three general rules are to be considered especially in the preliminary treatment:

1. Rest in bed.
2. Opium.
3. Wet packs.

The importance of rest in bed as regards supervision has already been mentioned. Therapeutically it is of greater significance. The patient is thus immediately removed from the changing impressions of daily life, to which may be combined emotions and concepts of anxiety. Innervations are spared the exhausted nervous system, the disordered circulation (see above) is afforded the most favorable condition for its regulation.

Opium treatment is demanded in every case. It directly counteracts the suicidal tendency by lessening the anxiety, but above all by its early employment and methodical administration it assures an essentially shorter and milder course of the disease. In regard to this and other particulars I refer to my Psychiatrie (Berlin, Fr. Wreden, 1894), and here present only the following facts: Give 0.05 of pulverized opium in powder or pill four times a day. The simple tinct. opii may be employed (10 drops four times a day). In extremely debilitated as well as in very young or old individuals, and finally in those with heart troubles, the dose naturally must be somewhat smaller. The best hours for giving opium are 7 A. M., 3 P. M., and 8 and 10 in the evening. The dose is to be increased 0.05 daily. It is best to give the larger dose in the evening so as to procure more rest during the night. When the "morning anxiety" (see above) is very intense give a larger dose in the morning (about 5 o'clock). In this way on the 5th day 0.1 of opium may be given four times daily. It is then to be further increased in the same way. If toxic symptoms appear (severe myosis, marked somnolency), continue the same dose for one or two days. Possibly a night dose may be given later. If the patient is somewhat quieter for one day it is no reason to discontinue the increasing doses; they should rather be increased and so in a certain measure prevent the impending anxiety. The commitment to a hospital should never be delayed or wholly

given up by a temporarily very marked effect of the opium treatment, for very soon intense anxiety will recur.

The subcutaneous employment of opium (ext. op. aq. 1.0, aq. dest. 15.0, glycerine 5.0) is less suitable; it often agitates undeveloped melancholiacs prejudicially. Subcutaneous therapy is limited to—

1. Cases in which there are severe gastric and intestinal disorders.

2. Cases in which there are very severe attacks of anxiety when it is essential to quiet the patient very quickly.

3. Cases in which the patient refuses to take medicine.

Morphine does not seem to me nearly so suitable as ext. op. aq. As to dosage, the effect on the psyche shows that 5 cgrm. of opium pulv. per os or 4 cgrm. ext. op. and 1 cgr. of morphine subcutaneously are about equal.

The highest dose to be given outside of a hospital is 0.2 or 0.25, the highest daily dose 0.8 to 1.0. By admission to the hospital the physician is usually spared such high doses.

The hydropathic treatment materially supports the effect of the rest in bed and the opium. Outside of the hospital wet packs are the most advisable. The arms may be left out of the pack; a temperature of 24° R. should be given for one hour. It is best given in the evening. Prolonged baths (26°-28° R. for one hour) often have a favorable effect, but are not to be employed often and are especially hazardous, for the patient has to leave his room and so readily finds an opportunity to commit suicide.

Besides these general indications furnished by the disease there are still numerous special indications, which arise from individual symptoms, to be taken account of. The most important are the following:

The physician is often embarrassed by the excited frenzy of melancholia agitata. Opium per os is here contraindicated. Also subcutaneous injections of aq. ext. of opium and morphine, which are usually tried, are often ineffectual. A subcutaneous injection of morphine 0.015 with hyoscin 0.0005 (hydrochlorate or hydriodate) is the surest. In weak patients the dose should be somewhat smaller, in strong patients larger. As a rule several hours sleep follows. In case of marked agitation such a mixed injection is very suitable on transfer of the patient to the hospital.

The patient's nutrition presents special difficulties. Cocoa, milk (with lime water 1 teaspoonful pro ½ lit.), eggs, meat, butter are especially suited to the diet of melancholiacs. Sweets and puddings are badly borne. Green vegetables (cabbage, lettuce, green beans, etc.) and berries are always to be forbidden. One or two glasses of beer are permitted. Wine is often very beneficial, especially in the senile forms. It is best generally not to give too much at one meal, but to offer food frequently. As opium lessens the stomach's secretion of hydrochloric acid (also in subcutaneous administration), so from the first one teaspoonful of hydrochloric acid solution (3: 200) is to be administered after each meal of albuminoids. Contingent nausea is to be met with cracked ice or small doses of atropia (0.0005). The ordinary stomachics are almost always contraindicated in melancholia gravis. The greatest weight is to be laid on the scrupulously exact care of the mouth. The tongue, teeth, etc., must be cleaned with a moistened rag by the attendant before and after each meal. The patient's mouth is to be washed out every four hours. In refusal of food do not resort to the stomach tube. It is generally possible to overcome the patient's resistance by patient and energetic persuasion. Immediately after a pack the patient may often be induced to take food. Above all the patient is to be repeatedly offered something, and existing digestive disorders (see below) removed, which often contribute as much toward the refusal of food as the anxiety and delusions. If the abstinence continues, administer nutritive clysters (½ lit. water, 2 eggs, 2 teaspoonfuls of starch, 0.05 of opium, a pinch of salt, 31° R.). With weak individuals begin such clysters after 18 hours of total abstinence, in strong persons 24 hours may lapse. Feeding with the tube is in general not to be thought of before 5 days of total abstinence. Naturally the state of the patient's strength is to be considered when deciding as to the time.

Smoking is always to be forbidden.

The patient's constipation may cause great difficulty. It is due to the melancholia. The opium treatment, which is often said to be the cause, only temporarily disturbs the intestinal peristalsis; on the contrary, it is often observed under opium treatment that the constipation yields with the cessation of the anxiety. If 36 hours lapse with no or insufficient bowel movement, a clyster of

glycerine or an enema is to be given. Castor oil (two teaspoonfuls in the morning fasting) is proper. Only in the most obstinate cases should high injections be given. The diarrhœa occasionally interfering with the opium treatment can be met with tinct. coto or nitrate of silver. Cotoin (0.1 to 0.15 several times daily) acts well in such cases.

Sleep is often very poor, yet a frequent use of hypnotics is not proper. At the most, occasionally give, besides the evening dose of opium, trional 1 grm., chloralamid 2 to 3 grms., or valeric aldehyde 4 grms.

A methodical psychical treatment during the short time of the preliminary treatment can hardly be thought of. Yet above all avoid discussing the delusions. Limit yourself to a brief word of consolation and an occasional authoritative protest to the delusions. As well to the assertions of the melancholiac that he is not sick, but bad, as to the extravagant ideas of illness of other melancholiacs, refer to the condition of the first thorough examination. Say to the first, according to the findings his nervous system is sick; after he is over this disease his sins will be then discussed. To the latter say that the examination has revealed this or that harmless symptom, besides the mental trouble; owing to the mental trouble he very materially exaggerates it, but both will be relieved, the mental disorder and the symptom worrying the patient. Then to quiet the patient treat the symptom to which his anxiety is due, *e. g.* the herpes praeputialis, from which arises the fear of syphilis; still it must not be thought that with the relief of these symptoms the hypochondriacal anxiety will disappear. The treatment of the melancholia is always the principal matter. Occupation may be permitted the patient in bed, yet only in so far as it is possible without sharp instruments.

The physician's visits should be daily if possible. On each visit inquire as to the—

1. Temperature, respiration and frequency of the pulse; the respiration especially is often an excellent index as to the emotional disorder (see symptomatology).

2. State of contraction of the peripheral arteries; the more tensely the arteries are contracted the more intense usually is the emotional disturbance.

3. Condition of the tongue; remind the attendant of the mouth's care.

4. Movement of the bowels; give the necessary orders immediately.

5. Taking of food; have an exact statement of what the patient has eaten in the last 24 hours. In many cases it is practicable and advantageous to keep a book. If the food has been insufficient, at once make an effort to get the patient to eat something (milk, bouillon with egg), and exemplify to the attendant the patience necessary.

6. Sleep.

7. Pupils with respect to the effect of the opium.

8. Psychical condition; ask the patient about his dejection and anxiety, whether and when they have been especially intense. To ask him about his delusions at every visit is pernicious. From the greater or less slowness of the answer a conclusion may be drawn as to the degree of thought inhibition. For testing the thought inhibition several indifferent questions may be asked.

On the basis of these facts now give orders for the next 24 hours (doses of opium, possible hypnotics, packs, etc.). Never leave the patient's abode without having repeatedly emphasized the precautions against suicide.

When the transfer to the hospital is granted do not hesitate a day. Give an agitated patient immediately before starting, as above stated, a mixed injection of morphine and hyoscin. A stronger dose of trional (1.5 grms.) in water four hours before the transfer, is permissible in such cases. Plainly tell quieter patients that they are now to be taken to the hospital[8] and provide sufficient attendance for the journey (two attendants at least if on the cars). It is entirely wrong to deceive patients and make them believe they are to "visit some one," "some one expects them," etc. The patients who later perceive the deception are thus often inspired with a mistrust hard to overcome, which quite often seriously interferes with the benefits of the hospital treatment. All falsehoods by which momentary excitement may be spared the patient and those about are avenged by a long mistrust on the patient's part, and hence are to be avoided. Finally, I would advise, in the interest of the further hospital treatment, giving the hospital physician a detailed history of the disease, including all

[8] See Emminghaus, Behandlung des Irreseins im Allg. Handb. d. Spez. Therapie, Bd. V.

points coming under this heading, especially the size of the last day's dose of opium.

c. *The Continued Treatment of Hypomelancholia.*

The physician should only consent to this when he is experienced in the treatment of psychoses, and the home conditions are favorable, so that the following plan of treatment is practicable and no disturbing conditions are to be feared. If one of these two conditions is not to be fulfilled it is better to send the patient to an insane hospital or sanitarium. The majority of insane hospitals now have open wards for mild cases, so the aversion, which exists somewhat still, is wholly unjustified. In many cases the transfer of the patient to the family of a relative or a stranger is to be recommended, change of residence often acting very favorably. It is naturally to be presumed that in the other place the two conditions mentioned are possible.

Regulation of the habits of life is one of the first therapeutic measures. In any case all employment is to be forbidden the patient, because the inability due to his thought inhibition and abulia tends to increase his depression. For the same reason housewives are to be forbidden housework or anything requiring a decision. To spare the patients the hourly torment of deciding to do this or that, it is to be arranged by time. The details naturally depend on the patient's sex, position, education, etc. In any case short, slow regular walks are to be taken. Rest in bed is to occupy a part of the day, but not at the will of the patient. Very essential is occupation which engages and diverts the patient without wearying and depressing him. Drawing, painting in water colors, making abstracts, simple copying, easy translations, botanizing, garden work, fret-sawing, modeling, etc., are especially applicable. With female patients certain hours are to be set apart for light handwork, cooking, etc. Simple games are often advantageous.[9] The usual attempts at forced amusement (concerts, theater, society, etc.) are to be entirely discon-

[9] Willis (De anima brutorum. Pars pathologica, p. 159; Opp. omn. Amstelodami, 1862) gives similar directions. He orders amusement, *e. g.* by "pictura," but then he continues: "quos deliciae aut ludicra non juvant (quibusdam enim melancholicis ea semper ingrata) illi ad negotia leviora uneunda suscitentur—etiam peregrinatio interdum valde prodest."

tinued. Regular but not fatiguing gymnastics (calisthenics, dumb-bells and staff exercises) are very proper. I have very often used the following plan with educated patients: Until 9 A. M., in bed; 8 A. M., first breakfast in bed; 9 A. M., cool bath of the whole body and dressing; 9½-10 A. M., rest and second breakfast; 10-11 A. M., drawing; 11-12 A. M., light cooking, dusting, etc.; 12 M.-12¾ P. M., a walk; 1 P. M., lunch; 1½-3½ P. M., in bed; 3½ P. M., bath as in the morning, dressing, glass of milk; 4-4¾ P. M., a walk; 4¾-5½ P. M., rest; 5½-6½ P. M., making an abstract, *e. g.* of a description of a journey; 6½-7 P. M., rest; 7 P. M., evening repast, 20 exercises with the dumb-bells previously, then to bed; 8-9 P. M., light handwork; 9 P. M., lukewarm bath of whole body (23°-26° R.).

The physician's tact chiefly consists in adapting this plan exactly to the individual case as far as possible. It must be daily ascertained if the patient adheres to it and be made to show what has been done.

The diet is to be regulated similarly as in the preliminary treatment of melancholia gravis. Careful care of the mouth is essential. Hydrochloric acid is to be ordered when necessary. Of the stomachics tinct. nux vomica is the best. The constipation is to be treated by abdominal massage and methodical gymnastics; compot is also to be given in the morning fasting. If the nutrition is very poor a regular diet is to be considered. Iron, arsenic and cinchonia are often proper as adjuvants.

The sleep occasionally requires assistance. A glass of heavy beer often suffices. Gentle massage of the neck and forehead is occasionally useful. Real hypnotics are to be completely avoided if possible. At the most, chloralamid (2 grms.) or trional (1 grm. in hot milk) may be administered once a week.

On the whole medicines are not indicated. A regular opium treatment especially is not indicated. If the patient complains of mild, indefinite anxiety, give 0.05 opium or 0.03 codein phosphate occasionally. If intense anxiety occurs, all that has been said as to the treatment of melancholia gravis is applicable; transfer to a hospital is not to be neglected, and even scrupulous supervision against suicide is demanded. If anxiety does not exist it is well to ascertain by an occasional direct question (see above) whether there are suicidal thoughts.

Mild hydrotherapy is very useful. Repeated cool baths during the day often act very favorably. In the evening a warm sponging is preferable (see above plan). Instead of this a wet pack 23° R. for ¾ of an hour, in anemics 26°-29° R., may be given; the arms are to be left free. Mild faradic baths (24° R., 20-25 min.) I have recently found very efficacious.

In the latter course of the treatment, often very tedious, when the physical condition is improved, the patients are gradually to be accustomed to more physical and later to more mental occupation. If a long stationary period in the improvement occurs and the disease threatens to assume a chronic character, a change of abode is imperative, as *e. g.* removal to a stranger's family, to a sanitarium, or a journey with a trusty relative or friend.

Melancholia is one of the most hopeful of mental disorders. Under proper treatment the percentage of recoveries amounts to over 90 per cent. The percentage of actual recoveries is much lower, owing to many cases being kept out of a hospital or from termination in suicide. May these lines succeed in lessening the number of these incurable yet once curable cases.

ON CHANGES IN THE NERVE CELLS OF THE CORTEX IN A CASE OF ACUTE DELIRIUM AND A CASE OF DELIRIUM TREMENS.

By AUGUST HOCH, M. D.,

Pathologist and Assistant Physician to the McLean Hospital, Waverley, Mass.

One of the cases which I wish to present in this paper I have reported to the Medico-Psychological Society of Boston in March, 1897. Since that time I have studied the specimens from a case of delirium tremens which I wish to present here also.

Since reports of alterations in the nerve cells in the so-called functional psychoses as well as in delirium tremens have been very scarce thus far, the study of the following two cases may be of some interest. This is the reason why I publish them, in spite of the fact that the work is in a number of ways imperfect; none can appreciate this better than the writer.

Case I, I have called a case of delirium acutum. This term needs an explanation, as it is very apt to be misunderstood. "Delirium acutum" is not a diagnosis like general paralysis, "Verblödungsprocess," or circular insanity, but is rather like the term depression, or excitement, or stupor. From these latter terms delirium acutum only differs inasmuch as in these a symptom complex is described with reference to its symptomatic character, in delirium acutum it is chiefly the intensity which is decisive. This is the sense in which I wish the term to be understood; it is a term which presumes nothing, and as I stated is above all not a diagnosis.

The diagnosis in the case is somewhat doubtful—a circumstance which detracts considerably from the value of the communication. The clinical history, however, is given in full in order to allow others to make a diagnosis for themselves.

Case II is an instance of delirium tremens, the specimens of which were kindly sent me from the Rhode Island Hospital. In

both cases no lesions were found in the other organs. This fact is of importance, for it has been my experience that somatic diseases of various kinds are very apt to produce cell changes, that therefore a complete autopsy is necessary for an interpretation of the cell changes found in a given case. But even with a complete autopsy which demonstrated the absence of any other disease, we cannot be certain that the cell alterations are due to the disease process which gave rise to the psychosis, as we shall see. The difficulties in the interpretation of such changes are therefore many, and the advance we have thus far made very slight.

CASE I. The patient was a young man, 19 years of age. In his family some neurotic traits are found. In 1892 he had an attack of excitement, which was observed by Dr. Folsom of Boston, who kindly gave me the data which are summed up in the following lines: The disease is said to have been preceded by the grippe; he had headaches and fever, and after he had recovered from this he began to have hallucinations of hearing. He soon got into a condition of great excitement, walking about a good deal, talking much in a rambling manner. His behavior was silly at times. A prominent feature were the hallucinations all through the attack, as well as his numerous delusions; the latter were often of an exalted character, for example he thought he was Napoleon. But they changed frequently. He quieted down after about four to five months. But some time after this on one occasion he again became excited and irritated from external causes, and again it became apparent that he had hallucinations. During the entire attack he slept well. Within about a month after quieting down he made a complete recovery.

The patient is described as being always rather peculiar; as a relative expresses it, "His mind was developed in a peculiar manner, some parts much more than others." He was, however, very intelligent, and, for example, wrote very good imaginative stories. Physically he was well built.

Before his present attack he had been working for the Harvard examinations and was compelled to give it up because his confidence failed him. He was depressed over that, but not unnaturally so at first. This depression deepened and became distinctly pathological about ten days before the onset of the more active symptoms.

Two nights before admission he showed some signs of suspiciousness; as he heard the rain on the roof he asked whether some one was there; he could, however, be reassured, and the following day he was fairly quiet, but during the night became suspicious, frightened, excited. He was brought to the McLean Hospital on the evening of July 28th, 1896.

On admission the patient appeared exhilarated, whistling and dancing

around the room somewhat. He talked but little spontaneously, and when seen later he appeared a little dazed. At supper he gulped down his milk, took large bites of his food, swallowing them without chewing them much. He had quieted down previously, and for the rest of the evening sat or lay down quietly, although "appearing on the verge of excitement" and looking somewhat frightened. During the night he did not sleep, but at first was restless, tossing about, after midnight getting out of bed and walking around the room, or standing in one place looking around in a frightened manner. He suddenly rushed into another patient's room, and when he had to be taken away was very much excited and struggled; he quieted down again when held. Temp. 100.5°, pulse 120.

July 29. At breakfast he suddenly screamed out without provocation, spat out his food, threw the spoon at the nurse and tried to overturn the table; the struck and kicked at the attendants, and when held became so violent that it took four men to restrain him. In his excitement he cried out "What is happening?" "What have I been doing?" etc. Often he called for help, shouting the names of some friends. His excitement was so intense that a camisole had to be applied. When seen in the morning he was lying in bed looking frightened, face flushed, his pupils wide, pulse about 120; when asked questions he looked suspiciously at the physician and those about him, but would not answer. Suddenly he asked in a frightened tone, "Am I going to be thrown overboard?" And when it was explained to him where he was and that he was not on a ship, he only said "Yes I am." He is a strong-looking, well-built young man; his weight (taken the evening before) is 180; he is about 5 feet 9 inches in height.

With his excitement there is no evidence of maniacal incoherence, nor do his attacks of excitement appear to be due to an elementary motor excitement, but there is something impulsive about them. He had asked for water, but when given it he would not drink and said in a frightened voice that it was poisoned. He asked to have the camisole taken off and it was removed. As it was a very hot day he was given frequent sponge baths. His pulse 120, temperature 99.5°. During the remainder of the day the patient had repeated outbursts of excitement and violence, similar to those in the night.

Urine high-colored, acid reaction, spec. grav. 1030. There is a large trace of albumen; epithel. cells both small, round and columnar; numerous hyaline casts with small cells attached and a few leucocytes.

July 30th. He has not slept any at all. He has shouted and struggled a good deal during the night. In the forenoon the patient was quiet, the restraint was removed and he was bathed; while in the bath he put his head under the water and opened his mouth. He did not resist when taken out of the bath, and remained silent when put to bed. Later he asked his attendant to leave the room and said he would put them all out; he began to struggle again violently, but without shouting. Suddenly he made a dash towards the brick fire-place with his head down, apparently

with the blind intention of doing himself some injury, and on one occasion he said, "You had better let me tear my own eye out." Later in the day he again made a similar attempt to run his head against the fireplace, and tried to bite a piece out of the tumbler. He occasionally uttered sentences like "I want to lead a clean life," or "If they only would let me lie on those bricks it would be good for the suffering humanity." Once he said his sister was upstairs and needed him and he ought to be allowed to go to her. He had to be kept in restraint most of the day. His temperature could not be taken because he resisted too much. Pulse 130. He has seemed nauseated and has vomited his dinner. He eats very reluctantly, and has to be coaxed constantly and fed.

July 31st. He slept only about twenty minutes all night, and struggled and resisted much during the night. This morning he is quieter than before and his pupils are less dilated. He appears dazed, rarely answers questions, and then not rationally. He eats reluctantly and said to his attendant, "You eat, I shall be damned and you saved." He was quiet during the day, lying on his bed a large part of the day; he repeated "19" at short intervals for over an hour.

August 1st. He has frequently wet himself. To-day, when frightened at a slight noise in the next room, he called out in abrupt sentences, "O God," and "I give in my Maker's name." He probably has hallucinations of hearing, as he spoke of voices.

August 2nd. Since yesterday the patient's color looks bad, he is rather dusky, his pulse is constantly high, he sleeps none at all. He answers no questions, often lies in bed heavy-eyed and dull, then he suddenly starts up and shouts, "We must go out, we must, we must," or "Come here ye men of Galilee." Alcohol and strychnia $\frac{1}{10}$ were given t. i. d. He often mutters and talks unintelligibly; often lies with his eyes fixed on one place on the ceiling, and keeps constantly moving his legs about; still struggles considerably at times when anything is done to him.

August 3rd. Patient looks badly—his color is dusky, his pulse constantly high, now 132, not strong, his temperature 101.8°. He looks not unlike a sick delirious fever patient. His abdomen is apparently not sensitive. It is impossible to examine his heart and lungs because he struggles. He is now constantly moving his legs and arms, frequently turning and twisting, sometimes suddenly jumping up. When held he becomes resistive, apparently blindly frightened, and calls out for help.

August 4th. He slept none during the night; again struggled a great deal, but in the morning became unconscious; again he rallied and struggled. He looked cyanotic, pulse very high, rising to over 140, and easily compressible; he was completely unconscious for several hours before death. Died at 10.30 A. M. During the whole course of his illness he obtained a very fair amount of food, partly by mouth, partly by nutrient enemata.

The diagnosis of this case presents certain difficulties. When once the disease process becomes very intense, as it apparently

was in this case, the characteristic features are apt to be covered up to some extent. The differential diagnosis lies between what Kraepelin calls a "Verblödungsprocess," especially katatonia, circular insanity, and general paralysis.[1] General paralysis is included in the differential diagnosis chiefly because we know that this disease can assume the form of a delirium acutum. Nothing positive speaks for this diagnosis, however, while a number of points may be brought up against it. The age, the absence of syphilis, the very complete remission which we would have to assume, as well as the character of the anatomical changes in the cortex, the absence of vascular changes, the absence of any evidence of chronic changes, all these points speak against general paralysis. The differential diagnosis, then, lies between circular insanity and katatonia. We know that in both these diseases we may have repeated attacks, in circular insanity with intermissions in which the patient is perfectly well; in katatonia, with remissions more properly so-called, in which frequently the patient has lost his ambition and his interest, or in which he retains certain mannerisms or a certain abnormal reticence, if the first attack does not produce a deeper dementia; on the other hand, we meet frequently enough with cases of unquestionable katatonia in which the remission is absolutely complete; we have seen a number of cases of this kind in this hospital. The apparently maniacal character of the former attack and the depressive of this would at first strongly suggest the diagnosis of circular insanity; and although it must be acknowledged that in this attack there is little that speaks in favor of this diagnosis, it might be assumed that its intensity masked the characteristic features to that extent. In the former attack the many hallucinations, which evidently were a prominent feature as well as the very numerous delusions, would make one somewhat hesitate as to the diagnosis. Nevertheless, the brief general description which we have of the first attack is not incompatible with the diagnosis of a maniacal phase of circular insanity. Dr. Folsom stated that to him it looked not unlike a case of hebephrenia. However this

[1] With reference to these diseases, and in general to clinical psychiatry, I must state here that I adhere to Kraepelin's school, and that the two terms katatonia and circular insanity are used in the sense of Kraepelin's teachings.

may be, the fact is that we have an attack of excitement which retrospectively judged may have belonged to either katatonia or circular insanity. The second attack, however, while having little that suggests a circular insanity, presents many features that speak for katatonia.

First, something ought to be said about the course and intensity of the disorder. It does not seem to lie in the disease process of circular insanity to produce attacks which in themselves lead to death, while this may occur in katatonia. This is a point which I have never considered formally, but which experience, especially that during my stay in the summer of 1897 in the Heidelberg clinic, has brought home to me.

If we sum up the mental picture we find that the patient was in a somewhat stuporous condition, in which he answered rarely any questions, or answered irrationally, but he paid attention, looking about suspiciously and showing by a few answers that he understood what was said to him; when something was done to him he resisted, and often got into a violent struggle, or without external cause became intensely excited, without, however, showing the least evidence of maniacal traits in his excitement. There seemed to be suspiciousness and fear, perhaps some hallucinations, apparently vague confused delusions. On a number of occasions there were sudden impulsive acts of violence towards others or towards himself. Finally we find the utterance of sentences like the following: "I wish to live a clean life," "I give in my Maker's name," or the senseless repetition of "19." Whether he was oriented could not be determined. Towards the end a condition of muttering delirium and finally of unconsciousness supervened. When we see these traits, namely, the intense excitement, the resistiveness, the fact that he rarely answered questions, the vague delusions, the utterance of sentences like those given, and the sudden impulsive acts, associated with evidences of attention and of understanding questions, we have a picture which, to my mind, is not incompatible with katatonia; and it has indeed certain traits, such as the impulsiveness, the intensity of the excitement, and the resistiveness, the fact that he persistently did not answer in spite of apparently understanding, which speak much in favor of it; even the vague delusions and the peculiarity of his utterances have a certain weight in this

direction. It may of course be questioned whether the two attacks belong together, a circumstance which is of considerable importance, and whether this is not simply a disease which we do not know. This is possible, but it seems more reasonable to regard the two attacks from the same point of view, although it is impossible to prove the necessity of this.

The further objection that this is a case of delirium acutum in the old sense, as a disease *sui generis*, is hardly tenable, the weight of evidence, it must be acknowledged, lying in favor of acute delirium not being a disease by itself. I would then in this case make a probable diagnosis of a condition of acute delirium as a phase of katatonia.

AUTOPSY.—Twenty-four and one-half hours after death. Well-marked rigor mortis is present. About the dependent parts a bluish red discoloration is seen in places. About the upper part of the chest there is a discoloration of a greenish purplish hue. There are a few superficial abrasions about the ankles.

Head.—Skull and dura normal. Pia: Vessels well marked, but there is no hyperæmia, no exudation, pia looks entirely normal. There is no unusual amount of fluid. The pia strips off well. The substance of the brain presents no hyperæmia. Neither on convexity nor on base anything abnormal can be discovered. The vessels at the base are delicate.

The lateral ventricles contain a normal amount of fluid and present in no way abnormal appearances. The same may be said about the third and fourth ventricles. Longitudinal sections through the centrum ovale and transverse sections through the base show no abnormality. Sections were taken from the first frontal convolution, from a place near paracentral lobule, and from temporal and occipital lobes; also section from the lower portion of the medulla oblongata. They were preserved in 96 per cent. alcohol. Transverse section through the medulla showed no abnormality.

Thorax.—The pericardium is perfectly smooth, with a normal amount of fluid. The heart looks rather small. The valves are smooth and delicate. The heart measures from the base of the aortic valves to the apex 10 cm. The aorta just above the valves 6 cm. At the beginning of the aorta there are a few yellowish patches. The coronary arteries are smooth. The thymus is still present, about the size of half a dollar, but irregularly shaped. Pleural cavities are perfectly smooth and contain a normal amount of fluid; the pulmonary pleura on both sides smooth, shiny. Lungs contain air everywhere, the dependent portion particularly looks congested.

Abdomen.—Nothing abnormal found in peritoneal cavity. The liver and gall-bladder show no abnormality. The spleen is not enlarged and appears of normal consistency. The kidneys are of normal size, the

capsule strips off easily, the cortex of normal thickness. Adrenal glands normal. Stomach and intestines show no abnormality. Pancreas normal. Bladder empty, normal. The spinal cord was not removed.

Microscopical examination of the kidneys showed no abnormality, nor was there anything to be found in the liver, numerous specimens of both organs having been examined.

Microscopical examination of the cortex.—Piece near paracentral lobule. With a low power it was seen that nowhere was there any disturbance of the normal arrangement of the elements of the cortex. The neuroglia nuclei do not seem to be present in unusual numbers. The vessels do not stand out prominently. With high power (oil immersion). Largest pyramids. The cell body is usually of light bluish tinge, it has a finely mottled appearance; in the upper part of the cell this is on the border of the visible, whereas lower down it becomes more pronounced, the processes may be seen very far, they answer to the same description as the cell body. The nucleus is often only with difficulty differentiated from the surrounding cell body, since it has about the same intensity of color as the latter and no line of demarcation, but it is absolutely homogeneous, sometimes with a few fairly large pale dots in it. The nucleolus seems not enlarged and is stained a deep blue. In some cells the nucleus may be somewhat better demarcated, being somewhat darker. The pale nuclei may also be seen in some large pyramids.

The large pyramids.—The cell body corresponds to the cell body of the largest cells; here also the finely mottled appearance is seen, which in the lower portion where the cell body may be distinctly darker is more marked; and not infrequently the appearance is then not only mottled, but may show a certain amount of network structure, which may even be quite well marked.

The processes.—The apical process is often seen at a considerable distance, it is usually just as the cell body, finely and indistinctly mottled, sometimes it shows indistinct light streaks, which seem to follow the course of tracts; the others are also seen to a great distance and may be just as the apical process, finely mottled, or at least in the beginning may show a network appearance or be somewhat crumbly. When the base of the cell shows the network appearance very much the processes are apt to be thin. The median basal process is often seen, and answers to the same description as the others. Occasionally there are seen either in the lower portion of the cell body, more especially in the basal, and as it seems above all in the central basal process, irregular lumps which stain very intensely with methylene blue (possibly calcareous deposits of Nissl); they are sometimes quite large.

The nucleus, considerably diminished in size and deeply stained, has a somewhat purplish hue, it is either oval or more longitudinal, the outline is as a rule well marked, but there is nowhere a visible membrane, it is entirely homogeneous and only shows now and then some ill-defined darker spots. The nucleolus is usually enlarged, round, dark, but may have lighter places in it. But the nucleus may also be lighter and less well defined.

The medium-sized and small pyramids answer to the same description. In the medium-sized pyramids the mottled appearance at the base has more frequently the network character, and this is still more marked in the smaller pyramids, where not infrequently the whole cell body presents this appearance; when this is the case the cell is apt to look rather dark, all the processes seem to be comparatively thin and the outline of the nucleus is made out with difficulty; the nucleus then may appear somewhat distorted.

The smallest pyramids of the second layer all have small nuclei, absolutely homogeneous, either round, oval, three-sided with rounded corners, and sometimes with rather large nucleoli, although these are often of normal size. The cell body is frequently much more marked that it is normally, and pale apical processes are often seen. The base often shows a network appearance with these processes arising from it. The whole cell body may also show the network appearance.

Cells in which the nucleus has the character described above and in which there is a balloon-like appearance around it, deeply stained crumbly substance at the base, especially an accumulation at the beginning of the basal processes, are not seen here. The spindle cells of the fifth layer correspond in their description to the larger pyramids especially. It should yet be mentioned that there are quite a number of cells, especially among the larger and medium-sized pyramids, which have a light rim around the nucleus, and in which the cell body is pale and in other ways defective; the nucleus in such instances may be of the description given or may be paler, otherwise retaining its shape and characteristics.

The first frontal convolution answers in its description to that just given, with the exception that here the cells with defective cell bodies are more common.

In the occipital lobe we again find the same characteristics. The cells of the small cell layer show a cell body which presents either a somewhat crumbly appearance or a more distinctly network character; it is much more prominent than normally, has often a distinctly pyramidal or polygonal shape, with processes of the same character as the cell body. The nucleus is homogeneous.

The first temporal convolution does not differ in any well-marked characteristics from other parts of the brain examined; here also there are a rather large number of defective cells.

Neuroglia.—Most glia nuclei have a rather small light rim around them, indications of a cell body being rather rarely seen; around some nuclei some light yellow pigment may be observed. The nuclei are of normal size and have a membrane. The most striking feature about them is that they contain deeply stained, uncommonly coarse granules. It is questionable whether there is any proliferation of glia nuclei. There are no bunches of them which would exceed the normal, nor is there any accumulation along the vessels which exceeds the normal. No mitoses are found. Sometimes neuroglia nuclei are seen lying in indentations and nerve cells.

The blood-vessels show no abnormality in their walls, nor do they stand out prominently when a section is looked at with the low power. In some places the leucocytes are increased within the vessels.

Cerebellar cortex.—In the cerebellar cortex we find essentially the same condition. The cell body has the same appearance as described in the cerebral cortex, that is, it looks finely mottled and often shows long processes of this same character; towards one side or towards the base the mottling may be coarser and look much darker, but it does not present the network character. The whole cell body may appear fainter and more shadow-like. The nucleus may be small and homogeneous, without membrane, but is well demarcated; or it may be somewhat ragged in its outline, or paler with some deeper stained spots in it. The nucleolus appears sometimes enlarged.

Finally the motor cells in the anterior horns at the lower end of the medulla were examined; they were mostly perfectly normal, or showed but slight changes in the chromatic substance around the nucleus, namely, a slight rarification.

We have therefore here a very uniform change which essentially consists in the following: The chromatic substance in the nerve cells is lost. The achromatic substance takes on the stain, this giving rise to a general uniform light stain of the cell body and the processes, the substance looking throughout finely and indistinctly mottled; owing to the fact that the achromatic substance takes the stain the processes are seen at a much greater distance from the cell body than normally. The nucleus is much diminished in size, oval or three-sided, with rounded-off corners, or somewhat longitudinal, perfectly homogeneous and dark, sometimes (in the largest pyramids) lighter, and then a number of usually faint, comparatively large spots are seen in it. The nuclear membrane is never visible. The nucleolus is frequently enlarged. This condition is present in many cells which were examined from different parts of the cortex (place near paracentral lobule, first frontal, tip of occipital, first temporal, cerebellum). But, especially in the small pyramids, there were certain differences to be observed. The cell body, to describe the extremest form, showed a network structure, a honeycombed appearance which may also be present to a certain extent in the processes, at least at the beginning, while the appearance further away from the cell may be more crumbly. The nucleus is also homogeneous; the nucleolus may be enlarged, but the nuclear outline may be less distinct, evidently because it is difficult to see

it on account of the dark network in the cell body. Indications of network structure are seen in the large pyramids, still more in the middle-sized ones, where also typical cells like the one described may be found. From a careful study of the sections it appears that we can see all transitions from the one to the other; it is also evident that these cells with a honeycomb appearance are chiefly present in the small pyramids. I am not prepared as yet to make any statement as to the origin of this appearance and its significance, but I have seen very similar appearances in this region in cases where the change which is here typical was not present. I have even been able to produce experimentally very similar pictures in a rabbit's cortex after death. It is therefore perhaps better to disregard for the present these forms. The same uncertainty I feel in regard to the changes in which the cell body is defective, partly around the nucleus, partly in other portions of the cell body, as it is not excluded that these appearances may be due to post-mortem alterations. That, however, the typical change which I have above described and which is present in very many cells of the most varied description is not due to post-mortem changes I can affirm with certainty, as I am well acquainted with this alteration from a number of other cases. It is this alteration which Nissl has designated by the term "schwere Veränderung" (grave alteration). The appearance of the nucleus is the most characteristic feature. There is a diminution in size of the nucleus, it is homogeneous, there is no visible membrane; other characteristics are, a peculiar purplish hue which these nuclei frequently have, and an enlargement often of the nucleolus. Interesting is the fact, however, that the nucleus does not become round, as in some other cases, apparently undergoing a process of liquefication as Nissl has described it, but simply diminishing in size and assuming an oval three-sided or longitudinal form. We see therefore no cells that fall to pieces, unless we should consider as such the defective cells described above, with regard to which we are not, however, able to exclude the assumption that they are post-mortem alterations.

I would also emphasize the great severity of the process in the nerve cells as well as its great extent. Whether the dark, small irregular lumps which were found in some of the processes of the larger cells are the expression of calcareous deposits which Nissl has described, I am not yet able to say.

The reaction of the neuroglia consists here chiefly in the fact that the granules in the nuclei are uncommonly coarse, while a proliferation cannot with certainty be asserted. It is deeply to be regretted that no neuroglia fibre stain was used; the fact, however, that the autopsy was performed so late made it appear hopeless to obtain any results. It is particularly to be regretted on account of the probable diagnosis of the case and the interesting finds which Alzheimer has reported in such cases at the last meeting of neurologists and psychiatrists in Baden-Baden.

CASE 2. Unfortunately the information which I obtained with reference to this case is rather incomplete, the clinical history lacking much in detail. At the same time, with the etiology as well as the few symptomatic data which we obtained, there can hardly be any question as to the diagnosis.

George M., 38 years old, a sailor, married, born in New York, entered the Rhode Island Hospital on September 16th, 1896. It is not known whether the patient had been a hard drinker all his life; but it is certain that for several weeks he has been drinking excessively.

On entrance he was very tremulous, and had marked hallucinations of sight and hearing. He says that he can see things around the room, that he sees knives on the ceiling, and that things are falling upon him. He seems to pick up things from the bedclothes that are not there. He seems frightened, is violent, fights and struggles a good deal, so that several men have to hold him and it is necessary to apply the straitjacket. September 17th. He is in about the same condition, very tremulous and continues to have hallucinations. September 18th. The straitjacket is removed to-day. Patient is very delirious and his strength is giving out. September 19th. He is failing rapidly. Death the same day.

The autopsy was performed by Dr. Jay Perkins, the pathologist of the Rhode Island Hospital. Nothing abnormal was found in the organs; the brain appeared congested, but was otherwise normal.

I wish to thank Dr. John P. Torrey of the Rhode Island Hospital for sending me the specimens and the above information.

A piece of the paracentral lobule was put into 96 per cent. alcohol at the autopsy and sent to me for examination. The result is the following:

ANATOMICAL DESCRIPTION OF CASE 2.

Microscopical examination. Low power.—The normal arrangement of the nerve cells is not interfered with, it is evident that there is an increase of neuroglia nuclei in the pyramidal as well as in the fifth layers; the vessels are on the whole not very prominent, but now and then a vessel stands out owing to the increase of nuclei around it.

The large motor cells are all very much altered. The following description applies to a characteristic sample. The cell body is an even blue,

not granular, at the same time the term homogeneous would not be fitting, yet the differences in the stain throughout the cell body are on the border of the visible, it may be called finely mottled, sometimes finely and indistinctly mottled, the processes are seen a greater distance than normally, they present the same characteristics as the cell body does, but are on the whole stained less intensely the further one gets away from the cell body. The apical process is not seen such a great distance. In other words, in the processes, as well as in the cell body, the chromatic substance is lost and the achromatic substance has taken on the stain; for this reason the processes are seen for such an unusually long distance. On one side of the cell body there are two well-marked indentations in which neuroglia cells are situated. The nucleus is of normal size, the contents show a very indistinct pale blue design, in which a few somewhat deeper but pale spots can be made out, besides this there is a fairly large number of smaller and larger sharply stained dots apparently distributed irregularly over the nucleus; the membrane is very indistinct.

The nucleolus is approximately round, not altered in size, with many lighter areas, the latter, however, being neither glistening nor well demarcated.

The other cells of this kind show essentially the same characters, sometimes the processes stand out even more sharply, so that side dendrites are well seen; in others the small sharp dots are less pronounced in the nucleus, and the whole nucleus may even be so indistinct that nothing but the nucleolus can be seen, surrounded by a lighter portion which gradually fades off into the surrounding cell body; the typical degeneration forms which will be described later as occurring in other kinds of cells are not seen here.

The large pyramids.—(Here again one characteristic cell is described.) The cell body shows the same appearance as described before, although it is here even farther away from the homogeneous, more approaching a finely mottled appearance. The processes are seen to a great distance, the apical as well as the basal, and even second and third dendrites can be observed; the processes especially, as one gets farther away from the cell, assume somewhat a crumbly appearance. The median basal process (axis cylinder) is seen well; it starts with a broad base, but gradually tapers off and ends in a sharp point. There is here, as in the other cells, not the slightest evidence of any tracts in the cell body or in the processes. The outline of the cell is well preserved, the base somewhat rounded, the cell body possibly somewhat swollen.

The nucleus is large, the outline sharp, the nuclear membrane well marked, the interior rather dark, the structure unusually well marked, it is possible to make out a distinct network, larger pale and smaller sharp dots are seen in the nucleus, the arrangement of these appears partly to be irregular, partly to follow the design of the network. The shape of the nucleus is oval. The nucleolus is not enlarged, looks a uniform dark.

The other cells show essentially the same changes; in some, however, the nuclear outline is less sharp, the network may be less distinct, the

sharp granules not present, or the nucleus may be smaller; again the membrane may be indistinct, consisting of dots, the whole nucleus lighter. Often the shape of the cell is altered, the pyramidal shape with sharp basal angle being lost, and the cells look more club-shaped.

The middle-sized pyramids answer very much to the same description. Here it should be particularly mentioned that no nuclear folds are observed; here the crumbly appearance of some of the processes is particularly seen, and at some distance from the cell even small sharp irregular darkly stained substance portions may be seen in them. The processes may present variations in caliber. It may here be added that all through the section, especially in the pyramidal and fifth, less marked in second layer, free cell processes may be seen which answer to the different descriptions here given of the different cell processes.

Among these pyramidal cells there are seen a small number of cells, the cell body of which answers on the whole to the description of all the others, with the exception that the cell body as well as the processes are darker, the nucleus differs materially, it is very dark blue and homogeneous. The nucleolus is very indistinctly seen, the nucleus may be distinctly smaller and longitudinal.

The cells of the second layer.—In some of these cells the cell body with the processes stands out very distinctly, being of faint blue and answering generally to the description given for the other cells, here also the processes may assume a crumbly appearance and present sharper substance portions. Other cells show but little cell body about them, the nuclei have all a distinct membrane, the shape of the nuclei is either oval, more frequently three-sided with rounded-off corners; they are dark, and in some the design is distinctly sharper than normally, in others this could not be said; sharp dots are but rarely seen, sometimes there are distinct indications of nuclear folds. The nucleoli, which are frequently excentric, present no unusual features, they are more particularly not pale; there are a number of nuclei which are lighter, in which the nuclear structure and membrane are less well marked, the nucleolus having in some of these lighter portions; but typical degeneration forms are not seen.

The cells of the fifth layer show in every way the characteristics which are seen in the pyramidal layer. Here more frequently the nucleolus is unusually pale with a purplish tinge. This may be the case in nuclei which are otherwise still well preserved, more frequently it is the case in nuclei which are lighter, which begin to have a somewhat indistinct nuclear membrane; some of these nucleoli are even diminished in size, but this is not frequent. Other nucleoli, and this is not very uncommon, have light areas; in some these are quite numerous. These same conditions of the nucleoli, *i. e.* the paleness and the appearance of light places in them, may be seen in the pyramidal cells, but in these it is much less common.

Besides these cell alterations which, as we have seen, show a great uniformity, with the exception of the few cells with very dark nuclei

described among the pyramids, the following forms are seen which apparently are further stages of the cell alterations described, and which must be looked upon as the degeneration forms.

One may see a cell like the following (situated in the lower portion of the pyramidal layer): there is a very pale, roughly, triangular, shadow-like structure with even fainter indication of processes, the whole of somewhat crumbly appearance. The nucleus is only slightly darker than the rest of the cell and has somewhat bluer hue in contradistinction to the more grayish hue of the remains of the cell body; the demarcation of the nucleus is very bad and the outline somewhat ragged, the remains of the nuclear wall are indicated by some dots, the interior shows fairly numerous sharp, darkly stained small granules, besides some fainter specks; no trace of a nucleolus can be made out. Similar forms may be seen where the nucleus is enlarged, others where it is distinctly diminished in size. In some a pale, small nucleolus can still be seen; other cells show a cell body falling to pieces with a nucleus that consists only of a small bit of remains of the nuclear wall seen on one side only, attached to this are the somewhat speckled remains of the nuclear contents with sharp dots in them, the whole showing a somewhat bluish tinge. These degeneration forms are present in the pyramidal layer, especially however in the fifth.

Neuroglia.—As was evident from the appearance with the low power, the neuroglia nuclei are increased in number. This is particularly evident from the bunches of nuclei seen partly near the vessels and partly around the nerve cells: others are seen without apparent connection with either of these structures, in one instance as many as fourteen neuroglia nuclei being counted in a bunch. The nuclei are mostly rich in chromatin and have coarse granules; they have a membrane. Many nuclei have large light spaces around them in which light yellow pigment may be seen; frequently there is a part of the cell body more or less large often attached to the nucleus in a cap-like fashion which contains finer and coarser sharp granules, more frequently the former, and sometimes the margin of the light space is marked with granules. Besides these there are a number of large neuroglia cells in which the chromatin is greatly increased; these have no membrane and there are peculiar nicks or even fairly deep indentations at the periphery.

In the first layer there are seen distinct spider cells showing a rather darkly stained nucleus which has lost its roundness and appears rather crumpled; around it there is a small grayish somewhat crumbly cell body with processes of the same description going in all directions.

The vessels.—The vessels frequently present no abnormality, some stand out prominently, however (partly on account of the neuroglia nuclei surrounding them), and some because they present besides an increase of nuclei which stain darkly, are apt to have very irregular outlines; they are situated immediately on the vessel; the vessel walls are unaltered.

To recapitulate, we find then a uniform change in the nerve cells which shows itself in the following features: the cell body

may look somewhat club-shaped, the chromatic substance is lost and the achromatic takes on the stain. On this account the processes are seen with unusual distinctness sometimes as far as the third dendrites, the axis cylinder is often visible ending in a sharp point, the character of the cell body is neither homogeneous nor granular, but may be described as finely and indistinctly mottled (sometimes this is on the border of the visible), the nuclei are sometimes large, sometimes of normal size, the nuclear wall unusually distinct, the nuclear design uncommonly sharp, numerous sharp granules being present in the nucleus; these are often seen to be distributed in the network; nuclear folds are often absent, and the nucleolus is not enlarged but may show light areas.

The next stage is apparently the one when the nucleus becomes lighter, the nuclear wall more indistinct and less regular in its outline, the nuclear network losing its sharpness, and frequently the nucleolus becoming pale, in a few instances distinctly smaller.

The last stage is that in which the nucleus becomes very pale, either small or very large, often ragged in outlines, the nuclear membrane being only indicated by dots and the contents indistinct, being speckled, with numerous sharp granules. The nucleolus is either of normal size and very pale, or diminished in size and very pale, or no trace of it can be seen, the latter being the most common occurrence. This change corresponds to that which Nissl has described as "acute Veränderung" (acute alteration).

The process in the nerve cells seems to be most pronounced in the fifth layer and least pronounced in the second. The reaction of the neuroglia consists in the following: there are large light spaces around the nuclei, the cell body is visible in parts often having granules in it, the pigment is often well seen, the chromatin is present in coarser granules than normally, and there is an *increase in neuroglia nuclei*. Besides we have in the first layer well-marked spider cells.

REMARKS.

The cell alterations which we have just become acquainted with must not be regarded as in any way characteristic of the two diseases in which they occurred. They both are found in somatic diseases, and it would be absurd to suppose that when we have

the "acute alteration" we have during life the symptoms of delirium tremens, or when we have the "grave alteration" the symptoms of intense impulsive excitement with resistiveness, etc. In a very general way we know the symptoms which occur with these two changes; they consist in somnolence and in coma. When we further learn that both these alterations may develop rapidly (I have seen the acute alteration develop in at most five hours and a half in a case of extensive burns which I studied in Heidelberg), we must acknowledge that even with a knowledge of the changes occurring in these conditions the step in advance is not great, *i. e.* we must not flatter ourselves that we have reached anything like the pathological anatomy of these conditions. The mere fact that the change is so extensive would make us hesitate to draw this conclusion even if we knew nothing with regard to these same alterations in other diseases. There are two possibilities so far as we can see now with regard to the relation of these changes with the two cases we have described, namely: 1. We may assume while earlier in the course of the disease the changes in such cases were slighter and perhaps confined to certain cell regions or cell kinds or certain layers of the cortex, the process became so intense that it produced the more intense and the more extensive changes, and led to death. 2. Or we may assume that the disease, owing to its intensity, produced secondarily a condition which in its turn gave rise to the cell alterations and which came on late in life; by this secondary condition we would of course not mean a pneumonia or the like, but rather the development of a poison. For we can hardly question that these two forms of changes in the nerve cell are due to intoxication. The question would then be, is this intoxication a part of the disease process or is it secondarily induced by the disease process. This, further study and experience will have to teach us.

Very probably more characteristic findings will be furnished when we proceed not only to study the changes in the nerve cells, but, as Alzheimer has done, the entire disease process, more especially the changes in the neuroglia.

DESCRIPTION OF PLATE.

a. Case No. 1. "Largest" pyramidal cell from the upper part of the anterior central convolution.

b. The same.

c. Case No. 1. Large pyramid from the first frontal convolution.

d. Case No. 1. The same with defective cell body.

e. Case No. 1. Purkinje cell.

f. Case No. 1. Cell from the anterior horn; almost normal, only slight rarification of chromatic substance in cell body.

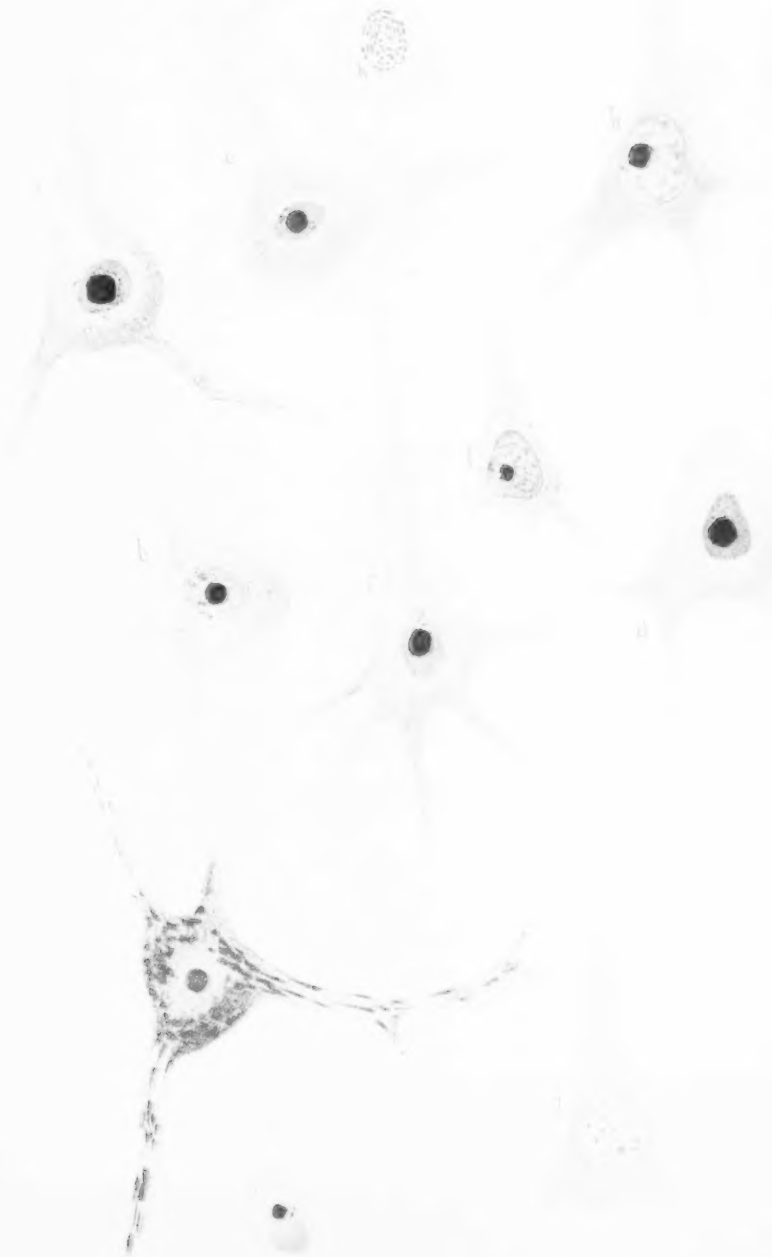
g. Case No. 1. Small pyramid from first frontal convolution.

h. Case No. 2. Large pyramid from paracentral lobule.

i. Case No. 2. Cell from pyramidal layer showing the terminal stage of the cell alteration represented in *h*.

k. Case No. 2. Neuroglia nucleus enlarged, with increase of chromatin, loss of membrane, and nicks at the periphery.

l. Case No. 2. Small pyramid from the upper part of pyramidal layer.



SIR JOHN CHARLES BUCKNILL, M.D., F.R.C.P., F.R.S.

In this issue of the Journal we present a portrait of Sir John Bucknill, or as he is more familiarly known on this side of the Atlantic, Dr. Bucknill. In the brief obituary notice which appeared in a former number it was intimated that a more extended notice would appear later, and we are happy to be able to accompany this notice of so eminent a member of the medical profession and one who has contributed so much to the literature of our specialty with such an excellent portrait.

Dr. Bucknill was born on Christmas day, 1817, at Market-Bosworth in Leicestershire. His father, Mr. John Bucknill, was a surgeon practicing at that place. He was educated at the grammar school of his native town, and subsequently at Rugby under the famous Dr. Arnold, the imprint of whose teachings can be seen in much of Dr. Bucknill's subsequent work and writing. He entered University College in 1835 and in 1840 took the degree of Bachelor of Medicine, subsequently becoming a house surgeon at the University College Hospital under the famous Liston. Sir John Erichsen and Sir Richard Quain were among his contemporaries. Dr. Bucknill carried on a private practice at Chelsea for a short time until his health broke down, when he removed to Devonshire, and in 1844 was appointed the first superintendent of the recently erected county asylum, which position he held until 1862. Entering upon his asylum work without any previous training in psychiatry or in the management of institutions for the insane, Dr. Bucknill, while lacking the advantages which previous opportunities would have given him, was nevertheless freed from the trammels of tradition and habit and was able therefore to mark out a course for himself which rendered his management of the Devonshire Asylum in some respects unique, and which at the same time attracted the attention and warm commendation of the Commissioners in Lunacy. He was one of the earliest to devise the cottage system, and as early as 1859 placed suitable patients in cottages under ordinary family care, contiguous to the asylum buildings.

It is more, however, as a contributor to the literature of the profession that Dr. Bucknill's name will be remembered. In 1853 the first number of the Journal of Mental Science, then known as the Asylum Journal, published by authority of the Association of Medical Officers of Asylums and Hospitals for the Insane, subsequently the Medico-Psychological Association of Great Britain and Ireland, was issued under the editorship of Dr. Bucknill. Dr. Bucknill continued to conduct the Journal until September, 1862, when he resigned the office of editor of the Journal and the superintendency of the Devon Asylum upon his appointment to the position of Lord Chancellor's Visitor. A special meeting of the Association, under whose authority the Journal was published, was called and the following minute was adopted: "The members of the Association, sincerely congratulating Dr. Bucknill on his appointment to the important office of Visitor to the Chancery Lunatics, have to express their regret that the responsible duties now devolving upon him are incompatible with his continued superintendence of the 'Journal of Mental Science,' and on receiving his resignation of its editorship, beg to offer him a grateful and cordial expression of their appreciation of his valuable services during a period of nine years. They feel assured that Dr. Bucknill will not cease to take an interest in whatever relates to psychological science and its application to medical treatment, and they trust that he may long enjoy his increased opportunities of promoting the welfare and the protection of the insane, and the real interests of the medical profession in relation to insanity, and which they believe to be inseparably connected with the real advantages of the community." This minute, it is interesting to know, was offered by Dr. Connolly.

Dr. Bucknill was succeeded by Dr. C. L. Robertson, afterwards, like himself, Lord Chancellor's Visitor in Lunacy. It is an interesting coincidence that these two men, associated as they were in the earlier development of the Medico-Psychological Association and of its Journal, passed away within two months of each other, Dr. Robertson dying on the 18th of May and Dr. Bucknill on the 20th of July. Dr. Bucknill's contributions to the Journal of Mental Science were all of a most interesting character. Many of his reviews were quite characteristic of the

man and can be easily recognized by those acquainted with his style and his methods of thought. He was extremely frank and outspoken, sometimes becoming somewhat offensive; and in his reviews of books which met his disfavor his criticism was by no means clothed in guarded language. We have before us an example in a review of a work which at the time attracted considerable attention, and while there is no question as to the correctness of much of the criticism, we cannot but query as to how much the strained personal relations between the author and the reviewer may have contributed to the character of the review. Speaking of the general style of the work he says:

"He cries up his wine, then sells us vinegar." "He begins with an introduction. In this introduction he rambles on, pouring forth whatever comes into his thoughts. He never looks before him, or behind him, to the right, or to the left; he hurries on, mistaking garrulity for inspiration, and the result is the production of a chapter which, like the rest of the book, consists of wordy declamation and inflated insipidity; or at the best, one inextricable compound of tares and wheat, chaff and grain."

His greatest work and the one by which he will be probably known is the Manual of Psychological Medicine, written in conjunction with the late Dr. D. Hack Tuke. The first edition of this work appeared in 1858 and it has passed through at least three subsequent editions, the second edition appearing in 1862, the third in 1873 and the fourth in 1879. To this manual Dr. Bucknill contributed the chapters relating to Diagnosis, Pathology and Treatment of Insanity. Other smaller works to which Dr. Bucknill has given his name are: "Habitual Drunkenness and Insane Drunkards," published in 1878, and the "Care of the Insane and their Legal Control," in 1880. In this last volume his strictures on private asylums made him unfortunately many enemies, but no man with Dr. Bucknill's force and outspoken courage of his convictions could fail to make enemies. He was an ardent champion of every cause which he espoused, and as violent an enemy of every cause or course which seemed to him wrong.

Dr. Bucknill did not confine his writing nor his interest to merely medical topics. In 1859 he wrote a work on the Psychology of Shakespeare, and in 1862 another upon the Medical

Knowledge of Shakespeare. Both of these works show most excellent literary ability and critical analysis. In the Asylum Journal of Mental Science for July, 1858, appears one of these studies entitled, "Macbeth, a psychological study." That Dr. Bucknill took a keen interest in the best literature and manifested an intelligent and medical knowledge thereof is shown in many of the reviews in the Journal of Mental Science while under his editorial supervision. An excellent example of his critical ability is shown on page 95 of the second volume, a review of Maud and other poems by Tennyson, signed with Dr. Bucknill's initials. This review covers nine pages of the Journal and is a careful and painstaking analysis of the psychological questions involved in some of Tennyson's work. He says, after referring to Shakespeare, "The study of mind in its irregular developments appears to have as great a charm for the great English poet of the present day as it had for that prince of song. The writings of Tennyson are peculiarly metaphysical, or, to use the new term, psychological. His 'Two Voices' and 'Palace of Art' display wonderful psychological insight, and his new poem is neither more nor less than the autobiography of a mad man. The critics have found great fault with Mr. Tennyson for choosing so disagreeable a hero, and have designated the wild poetry, wonderfully true to nature, in which the inner life of this morbid mind is depicted, as spasmodic and unpleasant. . . . Let others criticise the beauties of the poetry or the irregularities and novelties of the metre; the point of view we take is, the powerfully and faithfully drawn mental history."

In 1875 Dr. Bucknill visited America and was present at the annual meeting of the Association of American Asylum Physicians in May of that year, when he was elected an honorary member of the Association. There are many readers of the Journal who remember Dr. Bucknill's visit to this country and who were much impressed by his personality. He visited several of the American institutions for the insane, and in his notes on American asylums, published after his return home, with their outspoken and free criticism, to those who did not understand the downright honesty of the author, coupled as it was with a liberal allowance of what Americans are pleased to call insular prejudice, some of his strictures may have appeared un-

necessarily severe. He had, however, many warm friends in America, and his uniform kindness to visitors from this country who were fortunate enough to come in contact with him made him many more. He was, as has been stated by his son, Col. Bucknill, "demonstrative in wrath." He was likewise outspoken and frequently severe in criticism. Those who remember Dr. Bucknill will readily recall his magnificent physique. He was over six feet tall and was well proportioned. It is probably due to his keen interest in all matters of outdoor sport and exercise that he early took an interest in the Volunteer movement in Great Britain. He was, as we have stated in a previous notice, the first volunteer in the now thoroughly organized Volunteer organization of England, and it was probably much more largely on account of his interest and active support of the Volunteer movement that he was knighted in 1894, than because of a desire to reward his, to us, much more important and distinguished services in his chosen profession. Active in all that he undertook he was an illustration of Whittier's description:

> "Loathing pretence, he did with cheerful will
> What others talked of, while their hands were still."

E. N. B.

Medico-Legal Notes

ONE ASPECT OF FEIGNED INSANITY.

By H. E. ALLISON, M. D.,
Medical Superintendent Matteawan State Hospital.

The simulation of insanity implies that there is some purpose to be gained which the simulator has in view and which actuates his conduct. Where no object is apparent, and where none is suspected, the question of feigned insanity seldom arises. The important point to be determined in every doubtful case is, what benefit can come to the malingerer from his efforts at deception. Criminal offenders furnish the majority of instances wherein doubt as to the existence of actual insanity is apt to arise, and yet such persons, even when proven in some measure to be impostors, are often really insane or suffer from a degenerate mental and physical condition which renders them actually irresponsible for their acts.

An illustrative case is that of a youth named K., a native of Buffalo, who was accustomed for some years to display attacks of feigned epilepsy, whereby a crowd could be collected in the street and their pockets picked by his confederates. His manner of procedure was very clever and adroit. He would secure a piece of soap and by cutting his tongue produce a bloody froth at the mouth, the spasms were exceedingly well imitated, and the general appearance of the boy was all in favor of his deception. He would also exhibit similar seizures at other times, when alone, for the sake of sympathy and in order to secure alms or a comfortable place in which to sleep for the night. For some petty offense he was committed to the penitentiary and finally received a sentence to prison. There he was placed at a task which was distasteful to him and which he feared he could not perform. He told the prison authorities he was subject to epilepsy, and his statement not being heeded, he was one day seized with a con-

vulsion while in dangerous proximity to the machinery of the shop. As a result he was soon after sent to the Auburn Asylum for Insane Criminals. There the fraud was detected and he finally confessed his whole history. His term of sentence has now long ago expired, but he is an imbecile of such an inferior grade that he has been detained in custody, although he has not had a convulsion in more than six years. Formerly, if asked to do so, he would give an exhibition of his skill in this direction, but latterly, being out of practice, he absolutely refuses to attempt it and apparently is ashamed at his detection.

No doubt all hospital superintendents having care of the insane are familiar with rare instances wherein lunatics have taken a certain degree of pleasure in displaying before visiting strangers certain actions calculated to alarm them and which were purposely assumed with that object in view. Such a one was J. If not carefully watched by the attendants he would take great delight in making such exhibitions of himself, and upon one exceptional occasion, in an excess of zeal, he smashed out the panel of a door behind a departing company of visitors. He would usually laugh about his pranks afterwards. A word would control him, but it was not always possible to keep an outlook for him, and for that reason he was for a long time kept out of the path of visitors upon a retired ward. He was undoubtedly insane, and yet he exaggerated his condition. Finally his transfer took place to another hospital. Some years afterwards, in passing through its wards as a visitor with a large delegation, I found J. engaged in the same antics, which the attending physician assured me were harmless, though threatening. He recognized me and desisted long enough to greet me and express his pleasure at our meeting again. He had, however, failed considerably in his physical condition and soon afterwards died at the asylum.

The application is this: If an insane person for a playful purpose can heighten his condition for the amusement it affords him, or if an imbecile can sham epilepsy successfully or even moderately well, would it not be possible for another degenerate or for a chronic lunatic or paranoiac to do the same in order that he might escape punishment, gratify his vanity, obtain relief from the hard conditions of life, or even to gratify a weak and

morbid fancy or to receive the mere pittance of a trifling reward? We simply call attention to the fact that because an individual is found to be shamming to a greater or less degree it does not always necessarily follow that he is sane. It is possible for such a person to be both insane and at the same time a feigner. Most authorities agree that the underlying conditions in nearly all malingerers is one of physical and mental degeneracy, joined to a bad heredity, and much of what is feigned is often related to a state of actual insanity.

A recent case would seem to be in point—that of Prentiss or Prattis, to which the Philadelphia press has given considerable prominence. A colored convict was exhibited at the clinic at the University Hospital as a case of feigned insanity. He had formerly been an inmate of the Eastern Penitentiary, and had been pronounced insane by a commission appointed by Judge Gordon to investigate the affairs of that institution. The patient seemed to enjoy the large audience of students before whom he gave an exhibition, by tearing open a bed sack and scattering the straw, talking with an imaginary Mrs. Vanderbilt, dancing and uttering loud cries. He illustrated how he had eaten his food from a tub, how he besmeared his cell walls, and offered to show in many other ways how he created disorder in the prison, and yet he had only recently received his discharge from the institution, wherein he had exhibited marked signs of insanity for upwards of a year and without any apparent motive. While undergoing sentence he was regarded by the prison physician as a case of sub-acute mania; he claimed to be Jesus Christ. He was noisy and boisterous, especially after midnight. He often destroyed his bedding; he had been clubbed and tied to the steam pipes by his cell mates on account of his noise and turbulence, and his body was scarred with burns thus inflicted. His habits were also very filthy. He continued these manifestations until shortly before the expiration of his sentence, when he became quieter and was discharged at the end of his term of imprisonment. It is very questionable if this man was a feigner; indeed, the probability is strong that he was actually insane. The fact that he exercised a measure of self-control shortly before his term expired does not prove his sanity, for any one who has had experience with the criminal insane knows that it is a common

occurrence for indubitable lunatics to conceal and deny their delusions at such a time, often to break out with greater violence than ever when this period has passed. There is a popular belief that feigned insanity leads to an onset of the actual disease, but the presumption, in the great majority of such cases, must be that the earlier manifestations are evidences of true mental derangement and are not assumed. In the degenerate individual delusions of a marked nature and dangerous intensity often lurk deep, and the patient is cunning and wary, so that the surface indications without careful study of the man's history and behavior are apt to be misleading. Pure simulation in the case of a person sound in mind and body is rare.

A very interesting case of true insanity once came under my observation, interesting because of an extremely plausible but spurious confession made by the patient that he was a feigner. A young man, twenty-seven years of age, was committed to our custody from prison. His history showed that he had been sleepless, had persistently refused food for fear of being poisoned, was noisy at night, had assaulted officers whom he thought intended to kill him, and finally attempted suicide by cutting his throat. He created great disturbance in the prison and had been removed to a large room away from others, where he was placed in restraint. At the time of his attack he had only a few weeks to serve until the expiration of his term, and would then have been released from prison had he not become insane. Soon after his admission to the asylum he talked coherently, appeared cheerful, slept well for a few nights, and expressed no delusions. On the twelfth day after his reception he asked for an interview and then stated that he had feigned insanity. His story was that he wished to reform upon his discharge from prison, and in order not to return to his old associates and temptations in New York city he had asked the warden at Sing Sing for a transfer to Auburn prison. During his confinement he had learned shoemaking, and Auburn was several hundred miles nearer to Rochester, a center of the shoemaking trade, than Sing Sing. If his transfer had been granted he would have profited in this manner. At Sing Sing, upon his discharge, he would have received an allowance and the railroad fare of fifty-eight cents to the county of his conviction, a total of $10.58, out

of which, in order to reach Rochester, he would have had to pay about $7.00 for a ticket, leaving him a balance of a little more than $3.00. On the other hand at Auburn he would have received the same allowance and also his railroad fare to the county of his conviction; which from that point would have amounted to about $6.50, a total of $16.50, out of which, by reason of Auburn's close proximity to Rochester, he would have had to expend only a trifle in order to reach his destination. His request for such a transfer was denied, and thereupon, upon advice of a fellow convict, he shammed insanity, intending to gain his point by securing his removal to the asylum which adjoined Auburn prison. By there confessing his deception he expected to obtain his transfer to the prison itself, as it was the custom at the asylum to send all patients upon recovery to that prison. It was a very clear, coherent statement, and when questioned about his delusions he was equally shrewd. He stated that he never entertained a fear of being poisoned, but assumed it; and that he refused his food, but really secretly obtained from a friendly convict all he required to eat; that he shouted in a boisterous manner "murder! murder!" simply to create the belief that he was insane; that he assaulted officers for the same reason, but never really thought that they intended to harm him; and that the attempt at suicide by cutting his throat was also a part of his plan, and as a proof he showed that the wound was of a most trifling character, which was true, as it was slight and had not required any stitching. He said he had to do something, but that he knew enough not to hurt himself. In this case all his motives seemed to be extremely rational; but, notwithstanding his story, he was believed to be insane, particularly from the consistency which was displayed in the history of his delusions. When analyzed there was found to be a unity among them all, which pointed to insanity. He believed he was to be poisoned or killed by one of the officers, he shouted murder at night and called for help, and finally in despair he attempted to cut his throat. It was a realistic picture of mental derangement confined to one type and without any mixed features to obscure its truthfulness, and the patient was therefore returned to the ward for observation. It then appeared that after admission he had related some of his delusions

to a fellow-patient, who told him that if he made public any such ideas while at the asylum he would not be discharged upon the expiration of his term, but would be held indefinitely. The change in his surroundings from the prison to the hospital had in his case a quieting effect, and the alertness of his mind and his acute perception, thereupon enabled him to devise apparently most reasonable motives for all his acts in the story which he related. A week after his confession he completely broke down, his old ideas returned in force, with many new ones of the same nature; he became very voluble, talkative, filled with delusions and actively disturbed, in which state he continued until his transfer to another asylum, where he still remains, and after eight years' confinement is now in a condition of terminal dementia.

Experiences of the character such as we have related are not confined to convicts alone, but are often had with unconvicted criminal patients committed by the courts. It is rare, of course, that they are so well acted as in the case last described, for, as a rule, patients cannot conceal their delusions, the fact of their insanity being too evident to admit of doubt. Many difficult problems arise, however, in which it is wise to be conservative, to have as much time as is possible for observation, thoroughly to dissect every motive, to consider carefully the nature of each form of special derangement, and to bear in mind the peculiar aspect of simulation to which allusion has been made, namely, that feigning may be practiced or "confessed" even by those who are actually insane.

Notes and Comment

PSYCHIATRY AND HISTOLOGY.—Those who had the pleasure of listening to the address given by Dr. Ira van Gieson before the Neurological Society of Baltimore on the evening of February 16th, had clearly brought before them the intimate relations which are springing up between the science of psychiatry and that of histology or general anatomy. The subject as announced was "The Toxic Basis of Neural Disease," and the speaker in the course of his remarks dwelt at considerable length upon the histological appearances of normal nerve cells and the alterations which occur in these as the result of disease.

Dr. van Gieson, in agreement with many investigators of the present period, is of the opinion that the majority of diseases of the nervous system (in which category he includes, of course, diseases of the mind), like many diseases of the other tissues of the body, are to be led back to some form or another of "poisoning." The particular nature of the toxic agent concerned varies with the individual cases. Sometimes external poisons of mineral, vegetable or animal origin by some means or another gain an entrance to the body; of these, lead and arsenic, bacterial products, and the poisons which result from the metabolic activity of malarial parasites, will serve as examples. In other instances (the so-called auto-intoxications) the poisons appear to have their source in the body itself, either as a result of imperfect elimination of the normal products of tissue metabolism (as in uræmia), or in actual perversion of the metabolic processes of one or more of the tissues or organs, this in turn being dependent upon hereditary faults, an unfavorable environment, or both. It is probable that in many cases both external poisons and poisons produced by the body itself join forces to do injury.

In developing his subject Dr. van Gieson marshalled with care the various points which can be adduced as evidence in favor of the view that nervous diseases are toxic in their origin,

and he did much to make his exposition lucid by comparing the acute and chronic changes which take place under different conditions in the parenchyma and stroma of an organ like the kidney, with similar acute and chronic alterations occurring in the nervous tissues.

The most forcible of the data thus far accumulated in support of the doctrine in question are undoubtedly those which have been yielded by the application of the microscope to the study of the nervous system. Histological studies of the tissues from different parts of the nervous system (and the results of a great mass of such studies are now at hand, thanks to the lively activity which has been manifested in this field of work by physicians in England, Germany, Russia, Italy, France, Belgium, Roumania and America) have discovered in cases of poisoning, not only in those occurring accidentally, but also in those experimentally produced, marked alterations in the appearances of the bodies and processes of the highly differentiated elements of which these tissues are composed.

In some instances the portion of the neurone showing the most striking changes in appearance is that which, in fixed tissues stained with dyes like methylene blue, thionin, or toluidin blue, retains, on differentiation, the coloring matter with especial tenacity. This part of the nerve unit is known variously as the "stainable substance" (Nissl), the "chromatic" or "chromophile" part, the "tigroid substance" (v. Lenhossek); Dr. van Gieson, for reasons not wholly clear to us, calls it the "collagenous substance." Present in the living nerve cell in solution, this "tigroid" is precipitated on treatment with fixing reagents (Held), often in the form of characteristically shaped masses (the so-called Nissl bodies), in the same sort of nerve cell, apparently always (in health) in almost the same way. So constant are the appearances in different groups of healthy nerve cells (for example, in the motor cells of the ventral horns of the spinal cord, in the Purkinje cells of the cerebellum, in the large pyramidal cells of Betz in the paracentral lobule), that elaborate classifications of nerve cells have been constructed, based upon these alone.

In other cases, probably in severer forms of intoxication, in addition to the changes in the appearances and distribution of

the "tigroid," distinct alterations can be made out in the other portions of the protoplasm of the nerve cell. Dr. van Gieson appears to have very definite views concerning the finer structure of this portion of the protoplasm. In addition to the so-called "pigment" (his "metaplasm granules") and the "tigroid" (his "collagenous substance") he finds in the nerve cell a distinct reticulum which extends throughout the cell body and all its processes (dendrites and axone). There may be, he thinks, though he expressed himself with reserve upon this point, a difference between the reticulum in the dendrites and that in the axones. Filling up the interstices of the reticulum, and bathing it, is the softer, more fluid part of the nerve cell, the cell sap. The "collagenous substance," the speaker believes, forms, in the living cell, one of the constituents of the cell sap. Very interesting experiments on the nerve cells of the cockroach were described, in which it was found possible to squeeze out the cell sap, leaving only the cytoreticulum behind, as was demonstrated by staining. Dr. van Gieson looks upon the cytoreticulum as a contractile part of the nerve cell protoplasm, and imagines that, extending into the dendrites, it may enter into the formation of the "gemmules" present on many of these processes.

Much as the final word bearing upon the ultimate structure of the nerve cell is to be desired, a review of the bibliography quickly convinces one how far distant from it we are. Dr. van Gieson's view of the structure of protoplasm is most nearly in accord with the doctrine of Leydig and Schaefer. The "spongioplasm" of these investigators agrees with Dr. van Gieson's "cytoreticulum," and the "cell sap" of the latter is the "hyaloplasm" of Leydig and Schaefer. Van Gehuchten supports a similar view, and the observations of Flemming, Dogiel, Lugaro, Levi and others who believe in a "fibrillary" structure, though at first sight dissimilar, are found on close examination to differ from it but little.

On the other hand, there are several groups of investigators, among them many well trained men, who maintain a different attitude with regard to the finer structure of the protoplasm of the nerve cell. The whole school, at the head of which Bütschli stands, oppose the doctrine of a "reticular" as well as the doc-

trine of a "fibrillary" structure. The members of this school believe that protoplasm, as seen in fixed tissues under the microscope, has a "honeycomb" or "foam" structure. What look like fibrils of a reticulum are, they assert, sections of the walls of the "honeycomb structure" or of the vacuoles. Where distinct longitudinal fibrils are to be made out, by more suitable methods of preparation and examination (media of low refractive index, feeble illumination), they can, they tell us, observe delicate cross fibrils connecting the longitudinal fibrils (or as they would prefer to put it, they see the sections of the thin end walls of oblong chambers connecting with the sections of the thicker side walls). The active and careful young Leipzig neurologist, Held, has recently gone over this whole ground, exercising apparently every precaution as to his technique, and, with certain reservations which cannot be entered into here, has placed himself on the side of Bütschli.

The strife between members of these two schools, and the lesser struggles in which the supporters of still other views concerning the morphology of protoplasm have taken part, have occupied the attention of microscopists for some years, and every Year-Book contains an epitome of arguments new and old, *pro* and *con*. Those not familiar with the different views concerning the structure of protoplasm in general will find excellent epitomes of the whole subject in the text-books of E. B. Wilson, O. Hertwig, and Yves Delage, or in the lucid article of the Berlin anatomist, Waldeyer, which was published in the *Deutsche medicinische Wochenschrift* in 1895. The views of Dr. van Gieson, coming as they do from one whose name has long been well known to all who employ the technical methods of the histologist, are worthy of the closest attention and consideration, even if for the present it is necessary to leave the subject open.

After a statement of his views concerning the normal structure of the ground substance of protoplasm, Dr. van Gieson proceeded to a discussion of the various morphological changes to be met with in this in different forms of intoxication. His findings in diseased tissues are of especial importance, illustrated as they were by careful drawings, and to all psychiatrists interested in this department of work the reading of Dr. van Gieson's report, which we understand is to appear in an early number of the States Hospital Bulletin, cannot be too highly recommended.

The Pathological Institute of the New York State Hospitals is to be congratulated upon the results thus far attained in the work which it has undertaken. No one who heard Dr. van Gieson's address could fail to be convinced of the importance of the field which is being opened up, or to be encouraged at the progress which has already been and is still being made. Psychiatrists have been somewhat tardy in their domain in feeling the full force of the query of Morgani, *Ubi est morbus?* They have not heeded as they should the words of Bichat, *Qu'est l'observation, si on ignore là où siége le mal?*, notwithstanding the fact that in other departments of medicine the significance of these questions has long been generally appreciated.

One hundred years ago a great French psychiatrist and pathologist by his writings stimulated to activity a young man in Paris, who in the work of a few years founded a new science, that of General Anatomy or Histology. In his *Traité des Membranes*, published in 1800, Bichat stated that he owed his ideas regarding the relations between the different structure and the different affections of the membranes to the reading of the work of Pinel. It is very fitting that, as we enter the 20th century, histology should begin to pay back its debt to psychiatry. Histologists should not forget, however, that they will best celebrate this centenary by offering as a gift, accurate observations and objective descriptions shorn as far as possible of theories and hypotheses, no matter how pleasing and seductive the latter may appear. The contributions of Ramón y Cajal would be all the more appreciated if he had refrained from writing the article in the *Archiv für Anatomie u. Physiologie*, Anat. Abth., 1895, in which he has developed his astounding theories about the neuroglia, and we question whether Rabl-Rückhard or Duval would ever have advanced the hypothesis of amœboid movement of the dendrites could they have foreseen how far this hypothesis would lead some of the contributors to current psychiatric bibliography.

Importance of Good Health to the Feeble-Minded.—The Annual Report of the State Board of Charities of New York, recently submitted to the Legislature, contains a highly suggestive paper by Dr. J. C. Carson, upon "The Importance of a High Grade of Physical Health in Feeble-Minded Inmates

of Public Institutions, with a View to their Right Development and the Best Method of Securing such Health." Dr. Carson's large experience enables him to fortify his argument with instances of the direct effect upon mentally ill-developed children of improvement in the physical condition. In one case of a feeble-minded boy, who came under observation suffering from a bad favus of the scalp, immediate and very pronounced mental improvement followed upon the treatment and alleviation of the disease. His improvement was so great that his mother removed him from institutional care, satisfied that he was a normal child.

The consideration of the high V-shaped palate brings out some interesting facts. Dr. Langdon Down regards it as diagnostic of certain types of feeble-mindedness. Dr. F. H. Hooper, of Boston, believes that these high palates are caused by adenoid growths in the nasopharynx. An examination of the higher grade children in the Syracuse State Institution, by Dr. Halsted, showed that twenty per cent. had adenoids sufficiently large to cause mouth breathing. The almost magical results following their removal in otherwise normal children have been paralleled by cases among feeble-minded. The reports include a case of successful treatment of sporadic cretinism.

Dr. Carson further refers to the general physical defects and the hereditary phthisical and scrofulous taint of so many of the feeble-minded who improve mentally under proper hygienic surroundings. The means adopted to this end are practically the same throughout the civilized world. The most important is a proper dietary, which should contain a good supply of nitrogenous, phosphatic and oleaginous elements in a form easy of mastication. Milk, oatmeal porridge, entire wheat flour and green vegetables should enter largely into the list. Close attention should be given to the bladder and bowels, many flights of temper and intractability being directly traceable to a clogged bowel. Frequent baths with friction are necessary. Warm clothing with frequent changes is important, and the strictest attention must be given to the ventilation of wards and school rooms. All of the voluntary muscles should be daily called into play by calisthenics and gymnastics, and use should also be made of galvanism and massage. Dancing, out-door sports, regulated and systematic walking in pleasant weather, and military drill, all

contribute to the general mental and physical improvement. The experience of the past fifty years leads in the direction that efforts should more be given to the training of the hands rather than the intellects of feeble-minded children. Occupation is the great remedial factor, and the school affords the best means for moral, physical, industrial and intellectual training.

THE ASSOCIATED STUDY OF EPILEPSY AND THE EPILEPTIC.—From a pamphlet recently issued on this subject by Dr. William P. Spratling, Medical Superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., it would appear that the organization of a national society or association for the study of epilepsy and the care and treatment of epileptics is possible, and that such a society, if properly organized, would have a decided sphere of usefulness.

Thirty-five circular letters were sent out by Dr. Spratling to various prominent physicians, scientists and philanthropists, inviting opinions on the subject, and to these thirty replies were received, twenty-three of which were favorable, three neutral and four opposed.

The author of the pamphlet is of the opinion that such a society if founded should plan its work along broad and comprehensive lines, and summarizes the proposed work it should do under the following heads:

1st. The scientific study of epilepsy.

2nd. The rational treatment of the disease.

3rd. The best methods of caring for dependent epileptics, including—

a. The construction of proper homes based upon a study of the epileptic's needs as to classification and environment.

b. The study of the utilization of the epileptic's labor, for economic, scientific and ethical reasons.

c. The study of the best educational methods to be employed, including manual, industrial, intellectual and moral forms and forces.

It seems to us that such a society might serve a valuable purpose in investigating, collecting, preserving and distributing data relative to epilepsy, particularly so in view of the fact that the epileptic is coming more into prominence as a public charge.

There is one thing certain, and that is, that a vast amount of ignorance exists about this widely prevalent disease. Physicians charged with the medical care and treatment of epileptics in public institutions soon find this out. There is no better way to educate the public at large than through the organized efforts of such a society.

The scope of the society's work, as indicated by Dr. Spratling, should be broad. Its committees should include investigators of the highest scientific attainments, skilled neurologists and physicians conversant with the disease from the standpoint of the clinician and its treatment, and practical workers in charity of all kinds whose mission it is to relieve distress wherever found.

We hope the effort to organize such a society may be successful, and that when organized it may incorporate in its membership earnest and honest workers, whose efforts to inquire systematically and minutely into the causes of this disease may meet with abundant encouragement and success.

HASHEESH.—The JOURNAL has recently received a copy of the Report on the Egyptian Government Hospital for the Insane for the year 1896, which contains, among other interesting facts, the following note regarding hasheesh:

Haheeshism still remains the most potent cause of insanity in Egypt and heads the list in the foregoing table. There is also reason to believe that of the 128 male cases of which the cause is stated to be unknown, many are due to hasheesh. However, excluding cases where, although the cause is given in the certificate as hasheesh, no confirmation of that statement was obtained from the patient or his friends, there still remain 83 male and 7 female cases almost certainly due to hasheesh. Thus, of 330 male cases admitted in 1896, 83, or 25 per cent, were ascertained to be due to hasheesh; possibly the real percentage of male admissions caused by hasheesh is nearer 50.

The 83 male hasheesh admissions consisted of 45 cases of mania, 19 of weak-mindedness or chronic dementia, 16 of intoxication, and 3 of mania of persecution. The average residence in hospital of hasheesh cases admitted and discharged during 1896 was 40 days. Of the 83 cases, 28 came from Cairo and 11 from Alexandria. Their occupations were various, but a large

number were beggars and pedlars, and almost all were destitute; three were fellaheen and a few were criminals. Their ages varied from 20 to 60 years.

The motives given for the hasheesh habit varied; the majority alleged that they smoked the drug to make them feel jolly: others used hasheesh on account of its aphrodisiac properties, and several stated that the habit only commenced on their marrying. A number of patients alleged that they took hasheesh to soothe them when annoyed or depressed; it was not rare to find a convalescing patient urge as a reason for release that since he had taken hasheesh to calm his angry feelings and to prevent his injuring his neighbors, his lapse should be regarded as due to a praiseworthy motive. Certain patients on becoming insane from other causes took hasheesh as a remedy. In some cases it was difficult to decide whether the insanity was the result of grief or of the hasheesh in which the individual indulged to forget his sorrows. The majority alleged that they did not spend more than 1 or 2 piastres daily on hasheesh: a few admitted smoking all the hasheesh they could buy or beg. One individual, formerly an omdeh, stated that he grew his own hasheesh.

Some individuals combined opium eating with the hasheesh habit, and both drugs were found from time to time in the pockets or ears of newly admitted patients. The seven female hasheesh consumers admitted were either public women or servants in native cafés.

Intoxication and Nervous Disease.—The toxic origin of many pathological conditions which arise in the human body has been made manifest, and what a few years ago was regarded as simple theory is now recognized as a well-established fact. The past quarter of a century, particularly the last decade, has yielded so much exact information regarding the sources and the nature of the agents of intoxication, that these now form a class of etiological factors as definite as any which are known in connection with the causation of disease. The knowledge of the action upon the animal economy of such definite poisons as lead, mercury and alcohol has been supplemented and much extended by the study of the organic response to the bacterial toxins and to certain substances of an injurious character en-

gendered within the body itself. Thus what has been among the most unsatisfactory, because the least developed and most fanciful, of the chapters upon etiology has, largely through modern chemical and histological laboratory research, become one of the most promising fields of study. At the present time we possess definite and more or less comprehensive data relating to the extent and manner of the action of not a few organic and inorganic poisons upon the various organs and tissues.

Perhaps the most important contributions have been from the study of the organic poisons, especially those yielded by the pathogenic bacteria and those resulting from disturbed organic metabolism giving rise to the condition known as "auto-intoxication." But important as is this latter group—and the future has much in store for the diligent student, with modern methods at his command, who undertakes to work out in some measure the nature and effects of these elusive substances—for the present our energies must be devoted chiefly to the bacterial toxins. The human race is peculiarly exposed to and very susceptible to invasions of harmful parasitic micro-organisms. Beginning with the invasion of the exanthematous host and ending with the germs of influenza and of pneumonia, human life for each period has its especial set of enemies. Each invader comes armed with a destructive and often deadly poison or toxin, which we must now believe may be left behind to work further damage even after the enemy itself has been overcome or ejected. Let us examine one or two concrete examples.

If we undertake to measure the extent of injury which the diphtheria toxin may produce we must carry our investigations into regions remote from the throat or other portal of entrance of the poison. We shall find evidences of its ravages in the general lymphatic glands, spleen, liver, kidneys, heart, peripheral nerves and central nervous system. In like manner if we trace the path of damage done by the typhoid fever poison we shall soon be led far beyond the confines of the intestine and of the other abdominal organs. In both of these instances, but especially in the first, there is reason to believe that the action of the poisonous agent endures for a period which lasts long after the producing agents—the bacteria—have been removed. But it is not necessary that the poisoning of the body be always evident,

as it is when the more virulent germs are present; it is probable that injury is also done to the tissues by milder, more transient and less patent parasitic micro-organisms.

When we come to consider which tissues suffer from the effects of the action of these poisonous bodies, we see that the damage, almost without exception, falls first and most severely upon the more highly differentiated, or as they have been denominated, the "nobler tissues." There is much evidence to show that differentiation of tissues takes place not without certain sacrifices, one of which is a diminution in the power to resist the action of injurious stimuli. But it cannot be said that differentiation alone can be made to account for the differences exhibited in respect to susceptibility to the action of poisons, for it sometimes happens that physiological activity or function, as we say, is largely responsible. The action of mercuric chloride and certain vegetable poisons (ricin) upon the epithelial cells of the intestinal mucosa is intimately associated with their capacity to cause the elimination of these bodies.

These considerations are more or less familiar in their application to pathological processes which take place in certain organs, *e. g.* the liver, kidneys and heart. It is one of the many excellent features of Dr. Van Gieson's recent Baltimore address that he attempted to show that in the central nervous system, and especially in the brain, the conditions of anatomical structures are similar to those found in the other organs just mentioned. From this very similarity in structure, it is reasonable to presume that the central nervous system is exposed to injury just as are the other active organs of the body. The brain is a compound organ, which is resolvable, as is the case of other organs, into two essentially different elements, a parenchyma and a supporting tissue. The parenchymatous elements are the nerve cells; the supporting substance or stroma, the neuroglia. The first represents the nobler portion; the second the humbler and subservient part. As a penalty for its high state of development the former has given up one of the most fundamental and essential properties of living matter, namely, the power of reproduction, a function still retained by the cells of the neuroglia. There is, therefore, no special "nerve pathology"; the brain is built up on the plan of the other complex organs; it is subject to the same general laws; it profits and suffers as do these organs.

Dr. Van Gieson drew interesting and important analogies between the kidney and the brain as regards their anatomical structure and the pathological changes occurring in them. He attempted to show how parenchyma and stroma suffer, and that the various pathological changes in each of the elements of both organs are analogous. As a matter of fact, however, the similarity of anatomical structure in these organs is apparent only and not real. We may speak of the "connective tissue" or stroma of the kidney; but the stroma or supporting framework of the brain is not connective tissue. The neuroglia has the same origin in the embryo as the nerve cells; both are derived from the epiblast, and at the time of the appearance of the earliest cells in the developing neural tube both structures have the same value. At a later period differentiation takes place, but the supporting framework (the stroma, the neuroglia of the brain and spinal cord) is an ectodermal and epithelial structure. In the kidney, of course, the stroma or framework is of mesodermal or "connective-tissue" origin.

That this difference in embryological and histological characteristics will determine differences in pathological behavior does not, nevertheless, follow. The analogy seems justifiable, and it is to be commended in so far as it carries the import put upon it by Dr. Van Gieson, namely, that in respect of reaction to insult, or in the development of disease, the central nervous system is not a separate entity with peculiar laws of its own, but is subject to the same conditions manifested by other organs within the body. Of course there is good reason to believe that the nerve cells are more susceptible to injury than the glia cells; and we know that the latter are capable of replacing considerable defects of brain substance.

The human organism is exposed to injury from without through the entrance of poisons or parasites capable of forming poisons; it is also exposed to injury from within through the action of causes bound up with disturbed metabolism brought about by perverted, excessive or insufficient function of certain important organs. These harmful substances act now upon one, now upon another, and now upon all the organs of the body. The injury inflicted is severe or slight, is capable of being recovered from or does permanent damage. An expression of

deleterious effects exerted upon the kidneys is seen in Bright's disease, upon the liver in cirrhosis, and upon the central nervous system in certain degenerative and productive lesions.

EXPERT TESTIMONY.—The perennial crop of bills intended to correct alleged evils in the procurement of medical expert evidence has been of unusual luxuriance during the past season. Minnesota and New York have proposed almost identical legislation. The bill provides for the appointment, by the presiding judge, of not more than three experts in any criminal trial in which expert evidence is demanded. The experts thus appointed are required to take a juror's oath that they have had no conversation or communication relating to the case with counsel on either side. They are subjected to examination after the manner of other witnesses, and their qualifications are to be determined by the court. An Illinois bill provides for the annual appointment of experts for all hypothetical questions in criminal trials. From the list of official experts—appointed like notaries public for the year—counsel may select at discretion. It is sincerely to be hoped that none of these bills will be enacted. The ills which all the proposed measures aim to remedy are outgrowths of original sin and, like the social evil, will never find a cure by legislation. Bias cannot be wholly eliminated from the witness-stand, be restrictions what they may. The occasional instances where expert evidence has been alleged to be purchased do not indicate prevailing practices and are exceptional. Such instances are exaggerated; it is unjust to condemn indiscriminately a class of physicians who are as a rule honest, scientific, and who cannot be biased by a money consideration. If disparaging lawyers and journalists who are prone in their self-righteousness to exclaim "stop thief!" would moderate that diverting vocal effort, or tarry in their pursuit of the proverbial mote long enough to remove the individual beam, they might profit perchance by the leisurely opportunity to gain a truer insight into the merits of the questions involved. But a still more deplorable feature of the discussion of this issue is the readiness of the medical profession to decry its members who have the misfortune to appear on the witness-stand; forgetting, as they do, the diversity of opinion that frequently exists in respect to many obscure problems of medical science.

The plea of insanity as a defence for crime originates invariably with counsel. If the instances were known—and they are by no means rare—in which the expert has quashed the plea by outspoken advice, and at the sacrifice of a fee, it would astonish a public that has been too ready to condemn. The bare fact that scientific men are opposed to each other in a court of law is sufficient to lead to contumely and the insinuation that medical opinion is biased by a material consideration. The cases for which expert evidence is sought are usually obscure. There may be, and there usually is, sufficient ground for a difference of opinion, especially when hypotheses have been skilfully embroidered on a flimsy texture of fact until white becomes black in the typical hypothetical question. Upon abstract questions of science experts do not, as a rule, disagree. Scientific opinions are far more consistent than the judgments of courts, as is well illustrated by the large proportion of reversals handed down from courts of last resort. If legal experts disagree upon questions which have vast precedent and rulings, in many if not all of their phases, is it surprising that alienists should differ in respect to the workings of the mind organ with its kaleidoscopic manifestations? It may be that experts permit a partisan sympathy to carry them beyond a prudent neutrality, but fortunately human nature is not reversed in a physician, and his client, like his patient, receives his sympathies, which is surely permissible, if not praiseworthy, so long as he confines his evidence to strictly scientific truth. There is a manifest difference between an expert witness and a commission or referee. The position of the expert is not judicial, and the counsel consulting him very naturally extracts from him those scientific statements which favor his client, but in this manner only is he the counsel's ally. Such practice does not imply dishonesty. Nevertheless it is made to appear so whenever possible by opposing counsel, and thus lends color to the standing accusation.

The only remedy for partisan expert evidence is the medical commission. No statutory device within constitutional limits can prevent counsel from nullifying any provision that can come within the practice of American courts; and any court witness, however neutral may be his appointment, who is subjected to cross-examination will lose his identity as such in the estimation

of the ordinary jury. His evidence to be of any value must be either *pro* or *con* in its conclusions, and in either case he will be put upon the defensive by the cross-examination. His status will then be precisely that of the expert witness under the present practice.

A medical commission as a referee, with the court's prerogative, whose findings will be subject to review and appeal, might come within constitutional restrictions. There is apparently no other way of modifying present alleged abuses, except to adopt the suggestion of Dr. Ransom of New York that the initial legislation be confined to a statutory definition of the qualifications of an expert, or to have his qualifications passed upon by some representative body of his own profession. With this as a first and experimental chapter, an evolution of practice and sentiment might gradually lead to the correction of this over-estimated evil.

Fifty-fourth Annual Meeting.—The fifty-fourth annual meeting of the American Medico-Psychological Association will be held in St. Louis, Mo., commencing May 10th, 1898, and continuing until May 13th, 1898, inclusive. Arrangements have been made by the committee of arrangements for the accommodation of members at the Southern Hotel, where all meetings of the Association will be held.

The Enoch Pratt Bequest to the Sheppard Asylum.—On the twenty-fourth of February the House of Delegates, of the Maryland General Assembly, passed by a vote of sixty-five to twenty the bill which had nearly a month previously been unanimously passed by the Senate, changing the corporate name of "The Trustees of the Sheppard Asylum" to "The Trustees of the Sheppard and Enoch Pratt Hospital." This change was necessary in order to comply with the terms of the will of the late Enoch Pratt, of Baltimore, who made "The Trustees of the Sheppard Asylum" his residuary legatee upon the condition that the Trustees adopt the name and title of "The Trustees of the Sheppard and Enoch Pratt Hospital," and at the first session of the General Assembly of the State of Maryland obtain the passage of an act authorizing such change.

The estate which as a consequence of this change will be placed at the disposal of the institution amounts to about one million and a quarter dollars. From the income of this, according to the directions of the donor, the present buildings and grounds are to be completed, additional buildings are to be erected for at least two hundred more patients, and after that the income is to be mainly devoted to the care of the indigent insane, "in the most advisable manner, at very low charges or absolutely free," as may be deemed best in the judgment of the Trustees.

There was much opposition to legislative sanction to the change of name, most of which proceeded from interested parties who would have received the residuary estate had the Legislature refused to sanction the change. It is certainly to the credit of the members of the General Assembly of Maryland that, in the face of a powerful and influential lobby, backed it is reported by promises of liberal rewards to those who should vote against the measure legalizing the change of name, the bill was passed by such a large majority vote.

The lay and medical press of Maryland were practically united in favor of the measure, and the leading men of the profession were its active friends.

The Trustees have not yet outlined any plan of work, and as they made most careful and wise selection of plans for the buildings now in use, it is to be presumed that equal care and wisdom will be exercised in preparing for their completion and the erection of additional structures. It is to be hoped that they will not act hastily, as the profession looks to them to embody in their plans the latest and best thought in construction and organization.

The State of Maryland is to be congratulated upon the prospect of such excellent facilities for the care of a large number of the indigent insane. The State is sadly in need of them, notwithstanding recent optimistic statements regarding the care of her insane.

Death of Dr. Ringrose Atkins.—Irish mental medicine has lost an enlightened exponent in the death of Dr. Ringrose Atkins, Medical Superintendent of the District Asylum, Waterford. The deceased alienist succumbed on February 4th to suppurative appendicitis at the comparatively early age of forty-seven. Dr.

Atkins had a brilliant career in arts and medicine in the Queen's University, Ireland. His asylum experience began in the Cork Asylum as assistant medical officer. He was a most industrious writer on topics relating to the science and art of psychiatry, as all readers of the Journal of Mental Science know. He also contributed frequently to the Dublin Journal of Medical Science, of which he was an associate editor. He was a man of many amiable qualities.

AFTER-CARE OF THE NECESSITOUS INSANE.—The importance of helping indigent patients who recover from insanity to get started in life again is little appreciated by the public in this country, and there is a distinct call for earnest effort in this direction if we would meet a demand in which humanity, justice and economy alike unite. This demand, which is only beginning to be felt in the newer conditions of our country, has been recognized and nobly acted upon in European countries for a long time past with most beneficent results.

The earliest impetus in this work came from those engaged in the care of the insane, whose experience showed them how great were the difficulties to be met by cured insane persons in regaining a foothold in the world upon leaving an asylum. The first after-care society was originated at Eberbach in the Duchy of Nassau, by Lindpainter, the director, in 1829. Two famous French alienists and writers upon insanity in the early 40's also founded societies for after-care—Baillarger in 1841 and J. P. Falret in 1843. These two societies were consolidated in '48 and for fifty years have continued in increasingly humane activity, and in Switzerland, England, Italy, Germany, this work has long been earnestly prosecuted by enlightened benevolence. What we have learned in the beginning of our inquiry goes to show that the United States (and we must add Canada) do not compare favorably in these matters with European countries.

How worthy an object is this of helping the needy patient recovered from insanity! Convalescent homes for patients from general hospitals are springing up increasingly in our communities and their need is well recognized; yet if destitute convalescents from bodily diseases need after-care, even more do those from mental disease, because there is no malady from which

recovery is in every sense more difficult than from insanity. The patient of small resources who has been insane has generally lost or exhausted all his means, and months, sometimes years, have passed during which he has produced nothing for himself or family. If he is without family he has no place or person to depend on, and if he has a family he is either adding to their burdens and their misery if they receive him; or if, as in many cases, he is repudiated by his own nearest of kin he is still more wretched. The prejudice against one who has been insane may be ignorant and foolish, and indeed it is actually so in most cases, but it is nevertheless distinctly to be reckoned with. It leads to a general "passing by on the other side," and the foes of the insane convalescent in many cases are "they of his own household." Thus lack of employment, shelter, food, raiment, but, above all, lack of friends are encountered, and exposure to the elements, to temptations, to vice and idleness again and again bring about a relapse and the last estate of the patient is worse than the first. Not only is the principle on which the convalescent home is founded here applicable, but another recognized and established form of benevolence—that on which the prisoners' aid societies are based—is equally fitting of application, for there is just as rooted a prejudice, though of a different sort, against harboring or giving employment to the person who has been insane as there is against the ex-convict. Furthermore, the discharged prisoner is almost invariably given by the State at least a suit of clothes and a fair sum of money, while the patient recovered from insanity generally gets neither the one nor the other. Finally, if all other conditions were favorable, the ex-inmate of the insane hospital, though perfectly recovered, has before him all the difficulties incident to making a new start in life.

A renowned French alienist and humanitarian, Dr. Giraud, as quoted by Dr. Hack Tuke in a paper read in '94 before the London After-care Association, states that he considers the fundamental principle of after-care to be the following: "Society has not fulfilled its duties to the insane when it has helped them to be provided for and treated in asylums, if in their discharge it leaves them without support, without resources, and exposes them to causes of relapse. This is an omission not only from a

humanitarian but from an economic point of view." To supply this omission is the object of the various societies for after-care.

It may be useful to give a very brief review of what has been done in other countries in this direction.[1]

The French "Société de Patronage des aliénés guéris," which is the outgrowth of a consolidation in 1848 of two societies founded in 1841 and 1843 respectively by two famous alienists, who were also renowned philanthropists, Drs. Baillarger and J. P. Falret, has for fifty years maintained an increasingly beneficent activity. Quite full details of its operation can be found in the JOURNAL OF INSANITY for July, 1894. In the year '91, 1504 persons, men, women and children, were entertained at Sunday reunions and dinners, 646 were aided in their homes, and 51 persons were secured positions. About forty patients are constantly kept at the Home of the Society, many of whom are usefully employed in simple forms of shopwork or trades, but no one patient remains more than two months. About $7000 were expended in the work during this year.

In Switzerland there are nine aid societies for the insane; the oldest, founded in St. Gall in 1866, has two thousand members. The most recent one was founded in 1886. One of the best of these organizations was established at Zürich in 1875. From the reports of this Society a thorough system of co-operation of the people is apparent. The first invitation to membership in the Zürich Society, issued in 1876, reads thus: "In the knowledge that a rational and truly successful care of the insane is only possible when the efforts of the State find active assistance from the people . . . the undersigned invite the favor of the inhabitants of this Canton. The society to be formed proposes the task of protecting from relapse the needy patients discharged from the asylums, by means of material and moral support. The convalescent from insanity comes out into the world very often impoverished, helpless, alone, and alas! from the still existing prejudice, without prospect of support." One can see in studying the working of this Zürich Society that along with the en-

[1] These details have been gleaned from Tuke's paper above-mentioned and the description of the work of the French society by Dr. Victor Parant in this Journal in July, 1894; also from an account of one of the Swiss societies obtained by Dr. Adolf Meyer.

lightened humanity of the movement there is a practical economic sense, and that the good business man and the good Samaritan are united in the work. Experience with these helpless people has shown its necessity.

In Italy there is an after-care society at Milan, which owns a house and garden; and Turin and Reggio-Emilae have each after-care societies. Prof. Andre Verga was mainly instrumental in founding the Milan society.

Germany and Austria have after-care societies, the best organized of which is that of the Grand Duchy of Hesse, founded in 1874.

Last but far from least is the London After-care Association. Its title is "The After-care Association for Poor Persons discharged recovered from Asylums for the Insane." It was founded in 1879. Its secretary is H. Thornhill Roxby, Esq., whose address is Church House, Deans Yard, Westminster, S. W. This society does its work in three different ways:

I. By obtaining, when needful, an interval of change of scene and air.

(a) By placing in a convalescent home.

(b) By boarding in the country.

II. By giving grants of money and clothing.

III. By assisting to obtain employment.

It has an annual income of about $3000 in donations, subscriptions and bequests. After reading the reports of work done it is difficult to conceive how larger good could be accomplished with smaller means.

Time and space are lacking for further details. It is hoped the above will aid in quickening interest in this work with readers of the JOURNAL. The task is before us of informing and interesting the public in the after-care of the cured insane. A beginning has been made. In our last issue[2] we presented some account of the admirable work done, mainly by Dr. Henry R. Stedman as chairman of the committee of the American Neurological Association in gaining the important consideration and endorsement of this body for after-care, and we published the conclusions of Dr. Stedman's committee as to kind and extent

[2] *Am. Jour. Insanity*, January, 1898, p. 456.

of work to be done. At the meeting in New York this year (May 18-26) of the National Conference of Charities a sectional meeting of the committee on insanity is to be given to this subject. The work thus far done warrants us in saying that the cause at that time will receive substantial help.

THE PROGRESS AND PROMISE OF PSYCHIATRY IN AMERICA.—During the past few years psychiatry has furnished gratifying tokens of progress along scientific lines. One need not now debate the question that erstwhile vexed the *amour propre* of our neurological brethren, namely, to what extent alone intrinsic influences have aroused and stimulated consciousness of the rich harvests that await him who would intelligently and patiently till a fertile soil. The reader of the Summary knows that there has been advance everywhere, and for him to mark a fresh starting-point were indeed difficult, while to single out one State for special commendation would seem invidious. The Journal's purpose, however, is less to commend than to illustrate and incidentally to insist, by way of warning, upon the adoption of certain broad principles of conduct in this era of new and great things. If in the exuberance of youth we, as one of the more vigorous nations of the earth, vaunt ourselves upon our strength, we must take heed that "the brawn of Hercules" and a "martial thigh" lead us not into the temptation to trip too lightly the "foot mercurial," which alas! but too often has shown itself as a cloven hoof to more conservative peoples. Happily there is not wanting the evidence that that temptation has been successfully withstood in the evolution of the Pathological Institute of the New York State Hospitals. This centre for scientific investigation has existed two years, during which time it has been largely occupied in taking soundings, using its sextant and proceeding otherwise cautiously before spreading full canvas and away. Quite recently Dr. Clouston has expressed his belief that we are on the eve of an enormous extension of our definite knowledge in regard to the relationship of mind and brain. "Great, perhaps startling, generalisations on the subject seem to loom in the air; and until the man appears who will be able to shed the light of a great law on this, the most difficult of all scientific problems, we must be careful about accepting the conclusions of

those who generalize on imperfect data." New York may well vie with Scotland in hastening slowly in this matter. Indeed, New York may perhaps presume to give even Scotland the benefit of an instructive experience. The Pathological Institute is a distinct departure from the beaten track in so far as it is a protest against the precedent of confining investigation and research work in the life history of insanity, by the exact sciences, to exclusive work in the asylum itself by the microscope. It provides for an expansion of the entire field of study along comprehensive lines—the only way, it would seem, that furnishes solid ground for solid advance. This modern conception of the conditions that confront the scientist suggested a division of work into the subdepartments of physiological psychology; anthropology; cellular biology or cytology; pathological anatomy in its broadest sense, comprising not only work in the general pathological anatomy of the body at large, but also quite naturally in the specialized pathological anatomy of the nervous system; normal anatomy of the nervous system; physiological chemistry; bacteriology; experimental pathology; comparative neurology. The value of focusing these several departments of science upon the problems of insanity is obvious. Our only wonder is that we should have waited until this late day to elucidate and expand the largest problem in the universe instead of housing it up within asylum walls.

Particular stress, however, may be laid upon the imperative necessity for extending psychological investigations into the field of psychiatry and infusing new blood into a science which here and there shows traces of anæmia. Psychiatry, unfortunately, having no distinct and individualized methods of its own, has flapped about and drifted in the doldrums without gaining the new facts, phenomena and observations that are near and yet so far, and its legitimate property withal. These are wanted nowadays in psychiatry, instead of theories and hypotheses, which all too often are evolved out of the inner consciousness and which give rise to nothing more valuable than endless speculation.

"Ein Kerl der speculirt
Ist wie ein Thier auf duerrer Heide,
Von einem boesen Geist im Kreis umhergefuehrt,
Und rings umher liegt schoene gruene Weide."

But psychiatry can gather none of these facts and phenomena for which it is necessary to build up doctrines unless it has definite methods of investigation. These, therefore, it must borrow from other sciences, and most of all from modern objective psychology of the present time. Still another cardinal point of importance is the design of the Institute to bridge over the artificial hiatus between nervous and mental diseases, however much the distinction between the two may be of practical importance. No distinction between them from a scientific standpoint is of any use whatsoever, but on the contrary injurious, and has contributed not a little to retarding the progress of the pathogenesis of both sets of diseases, more particularly the mental group. For this reason we are gratified to note that the Institute has declared its purpose to go on with the re-investigation of nervous diseases, which the modern advances of the day in cytology and morphology of the ganglion cell demand. Such an institution must have ample time to grow and develop; it cannot be created by fiat and put forth startling scientific discoveries the moment it is born. Let ample time be given for organization of its departments, let responsible men be placed at the head of each, and then let them elaborate and concert their plan of scientific action.

We are gratified to know that already in the comparatively brief period of two years the Pathological Institute of the New York State Hospitals is ready to publish some of the results of this departure from conventional methods of inquiry. We feared that the expectancy of epoch-marking results by those who are not equipped to understand in detail how complicated the technical methods of these various branches have grown, and how deliberate, patient, cautious and extensive this kind of work must be, might prove a tedious obstacle to the establishment of similar institutions in other States.

In Massachusetts the advance research is already well along. Under Dr. Cowles' stimulus at McLean Hospital, Kraepelin's pioneer work in resurrecting psychiatry by the vivifying touch of psychological methods of investigation maps out the trend of clinical studies, and cellular biology, in the hands of Dr. Hoch and his associates, is forming the substratum of pathological inquiry. At Worcester also, under the guidance of Dr. Meyer, scientific investigation of the insane has broadened out, especially

along the advance lines of cytology of the neuron, while at Danvers it appears that the great field of the powerful Golgi-method type of research is being carefully garnered.

There is much to be said in favor of the location of such an institution in the metropolitan centre of a State, where it may come in contact with extrinsic phases in the development of the life history of insanity, and not within one of the hospitals, where its opportunities in such a direction would be restricted. In good season it may reach out among the internes and physicians for active workers, but before this can be done there must be given time for development. The profession generally should guard itself against the thought that the men in the hospitals can immediately plunge into the intricacies of technical methods of investigation, much less interpret their results, simply because a pathological institute has been inaugurated containing a staff of investigators who have devoted years of training to gain these capacities. But it should be the design of the Institute to provide instruction to hospital men, who should be stimulated to choose wisely in the prosecution of research work and guided in their operations by trained specialists; it may be in the comparative biology of the nervous system; it may be in some neurological field; it may be along psychological lines of investigation; it may be in physiological chemistry, etc.; or it may be with reference to the effects upon the nervous system of a general somatic disease of every-day occurrence, which, by the way, should be investigated by those who would seek further progress in the pathogenesis of mental diseases. Here we have an excellent illustration of the great advantage of broadening out the scientific investigation of the insane and bringing it into touch with the extrinsic phases of insanity. As physiologically and morphologically all development is a progress from the general to the special, so in the evolution of this great auxiliary department of psychiatry, in New York and elsewhere, must one be careful to build upon a sure foundation and not run riot in specialization before that prerequisite of safety is an accomplished fact of construction. Then may we have the satisfaction of realizing that " the crescent promise of our spirit hath not set."

Obituary

EDWARD CONSTANT SEGUIN, M. D.

NEW YORK.

Dr. E. C. Seguin, at one time one of the best known of American neurologists, died at his home in this city, on February 19th, 1898, of a chronic affection of the liver. Dr. Seguin was born in Paris fifty-five years ago, but was brought to this country by his father, Dr. Edward Seguin, when he was seven years old. He was a brilliant student, and was graduated from the College of Physicians and Surgeons in this city, at the early age of twenty-one years, after having already served two years as medical cadet in the regular army. After the war he was stationed as post surgeon at different forts in New Mexico. Afterward he resigned from the army and went to Paris to study in the clinics of Charcot and other neurologists. He returned to this country in 1870 or 1871, and at once began the practice of medicine in New York City. For nearly fifteen years he was a member of the faculty of the College of Physicians and Surgeons, and was also actively engaged in neurological practice and in editorial and other literary work. His health had been poor for some time before his death and he had lived in practical retirement for several years. He was an honorary member of many neurological societies in Europe.

WILLIAM P. JONES, M. D.

Dr. W. P. Jones, a resident of Nashville, Tenn., for fifty years but a native of Kentucky, died at his home, September 25, 1897, at the age of 78 years. He had filled many public offices and was president of the Medical Department of the University of Tennessee. He was superintendent of the Central Hospital for the Insane at Nashville from 1862 until 1870, being the immediate predecessor of the late Dr. Callender. He was a member of the American Medico-Psychological Association.

Book Reviews

The Psychical Correlation of Religious Emotion and Sexual Desire. JAMES WEIR, JR., M. D. Courier-Journal Job Printing Co., 1897. 338 pp.

This book will be somewhat of a disappointment to the seeker after pornographic literature, since it is really not as bad as the title would seem to suggest. The first hundred pages are devoted to the consideration of Religion and Lust, and the author's first proposition is that the idea of the supernatural was primarily derived from external phenomena. He then discusses the subject of Phallic worship, and concludes this part of the volume with a discussion of the relationship which he supposes to exist between religious feeling and sexual desire. The physiological explanation, namely, that all emotional states are in a sense correlated, does not seem to have occurred to him. The line of argument is unscientific and the illustrations are drawn in large part from old books of travel. Much time and labor have evidently been expended exploring the musty, dusty, dirty pages of ancient literature without educing proofs strong enough to warrant the conclusions arrived at, and it is to be regretted that this energy was not directed to some more useful theme. It is perhaps true that at one time in the world's history the organs of generation were objects of veneration, but at the present day the temples of Venus are under police surveillance. The remainder of this volume is devoted to a number of short, incomplete and dull articles upon such hackneyed themes as hypnotism, genius and degeneration, suicide, etc. The author is perhaps to be congratulated on the fact that religion and lust did not pursue each other through the whole book. G. J. P.

The Psychology of Suggestion. By BORIS SIDIS, M. A., Ph. D., Associate in Psychology at the Pathologic Institute of the New York State Hospitals, with an Introduction by PROF. WM. JAMES, of Harvard University. D. Appleton & Co., New York, 1898.

"By suggestion is meant the intrusion into the mind of an idea, met with more or less opposition by the person; accepted uncritically at last; and realized unreflectively, almost automatically." After such a definition one may well be apprehensive as to the remainder of the book. Suggestion the author confines, in spite of the above specifications, to the "subconscious self." He explains it by "disaggregation," as due to a "split" or "cleft" between the "upper" and "lower" selfs. Neurologically this "disaggregation" is the result of retraction of the cell dendrons. In normal suggestion the retraction is slight. In hypnosis it is abnormal, and the depth of the hypnosis is proportional to its completeness. In

criticism we may remark that the difficulty with such a theory lies in imagining how disaggregation and retraction among the cells generally, as described by the author (p. 212), can explain the sharp horizontal cleft between an upper and a lower self which he, throughout, conceives. To think of the hypnotic self as a *reduced* self may well be possible. But a treatise of "suggestion" outlined on the assumption of "disaggregation," and filled in copiously with hair-standing selections from modern French hypnotic clinics, is, we fear, less available to the sober student of this perplexing subject than pure blank paper.

In support of his theory the author presents many "experimental investigations." All laboratory men of the exact science must read these with sorrow—or the extreme contrary. In his preface the author declares that "it were well if the French were to conduct their investigations with German thoroughness." Yet in spite of this it would seem that the author himself clearly belongs to the French school.

Part II of the book treats of The Self; and here is outlined a new system of psychology and of metaphysics, with great satisfaction, it would appear, to the author. Part III carries "suggestion" into society. The following quotation fairly suggests its value and the general style of the book throughout: "When, however, it [normal suggestibility] rises to the surface and with the savage fury of a hurricane cripples and maims on its way everything it cannot destroy, menaces life, and throws social order into the wildest confusion possible, we put it down as mobs. We do not in the least suspect that the awful, destructive, automatic spirit of the mob moves in the bosom of the peaceful crowd, reposes in the heart of the law-abiding citizen. We do not suspect that the spirit of suggestibility lies hidden even in the best of men."

In a word the book is not sound. It would not merit the consideration of this Journal were it not typical of the literature that is flooding this particular field, and did it not bear upon the title-page apparently official endorsement from a high quarter. This latter, however, is easily to be understood by any one familiar with the ever-flowing tenderness and generosity of him who has lent his famous reputation to the Introduction.

Hypnotism is a rich field, fairly crying out for reliable investigation. When will the right man come!

Jamaica. Annual Report on the Lunatic Asylum for the Year ended 31st March, 1897. J. W. PLAXTON, M. D., Medical Superintendent.

At the end of the year the Jamaica Asylum contained 722 patients, an increase of 58 over the number remaining at the end of the preceding year. The report shows that this number is straining the capacity of the asylum to the utmost. The report shows a very low death rate (4.93 per cent.), the lowest in the history of the asylum, due to an entire absence of deaths from diarrhœa and dysentery—"a circumstance probably unique in the history of a tropical asylum." Of the deaths, however, 36 per cent. were due to pulmonary disease, and Dr. Plaxton urges the necessity of

isolation wards for cases of tuberculosis. The report is a brief synopsis of the work of the year, and as such does not differ from other asylum reports. There seems some need of legislation, especially as regards the restriction of marriages among degenerates, and this point comes with fresh emphasis, following the removal from the asylum during the year, against the advice of the superintendent, of a patient for the purpose of permitting a contract of marriage. The patient was not long after returned to the asylum, the parent of a child.

Zeitschrift für Criminal-Anthropologie, Gefängniswissenschaft und Prostitutionswesen. Edited by WALTER WENGE, Dr. Med. and Phil., and many other collaborators. Published by M. Priber, Berlin, 1897.

No. I.

1st. Lombroso and Criminal Anthropology of to-day. By Dr. Paul Näcke.

2nd. Crime and Mental Disease. By Dr. Rudolph Arndt.

3rd. The Handwriting of Criminals. By Dr. W. Preyer.

4th. A Study of the Bibliography on Prostitution for the Year 1896. By Dr. Münchheimer.

5th. An Inquiry into Suicide. By Dr. Laupts.

6th. A Report of the 4th International Congress of Criminal Anthropology held at Geneva. By Dr. Paul Näcke.

I.—Näcke in his paper severely criticises certain of Lombroso's theories in relation to criminals, and shows how much of Lombroso's work is of a superficial character and lacking in careful scientific investigation. The modern trend of thought among the best informed students of criminology in Germany, France and England is opposed to the ideas of Lombroso, who maintains, broadly speaking, that the criminal belongs to a distinct anatomical and physiological type of man, that he presents a type of atavism, that he is born a criminal, not made one by external conditions. Those opposed to Lombroso feel that it is not possible to classify criminals in this manner, that Lombroso has gone too far, and that more weight must be given to the consideration of external factors in the production of the criminal class. The difficult question of "moral insanity" and its relation to crime is taken up, and Näcke shows that Lombroso has no clear idea of the true meaning of "moral insanity." It appears from this paper that Lombroso is coming to hold a more and more lonely position in the study of criminology, and that he bitterly attacks all students, including Virchow, who hold different ideas from his, and accuses them all of ignorance and of not carefully studying his own works. Näcke concludes his paper with the four following propositions, to which the best criminal anthropologists conform: *a*, all so-called signs of degeneration are found more commonly among criminals than among other men; *b*, along with the individual factor in producing a criminal, the social is also very important, which some students, certainly falsely, attempt to make alone responsible; *c*, among criminals are

included many insane, weak-minded, and "minderwertige," who are improperly thus classified; *d*, most of the so-called signs of degeneration belong to the realm of pathology, and may point to an abnormally acting brain, but cannot be said to be a proof of criminality.

II.—Arndt discusses the relationship of crime to mental disease, and relates the history of an interesting case. He first explains how the recognition of a man with mental trouble is to be made, and enters fully upon variations of character and deed of the individual affected. He shows that much confusion has arisen, due to the different views held by doctors, courts, and the laity, thus making it most difficult at times to decide whether an individual is or is not mentally diseased. He remarks that as there is "no absolute Ego, so there can be no exact mental disease" ("wie es kein unbedingtes, kein absolutes Ich giebt, so es auch keine Krankheiten desselben an sich, mithin keine Geisteskrankheiten an und für sich, geben kann"); and "mental disease is only the morbid expression of a diseased Ego" and that "a marked change of character is the surest proof of a disease of the mind."

III.—Preyer, who has devoted much study to this question, believes that the importance of the subject has not been sufficiently recognized, and that much more attention should be given it; that collections of handwritings of criminals should be made and carefully analyzed. He believes moral defects in the character of unknown persons can be diagnosticated from their handwriting, and that the graphological examination may in certain cases be of the utmost importance in the imposition of punishment. He concludes his paper, which is simply a plea for more extensive investigations into this subject, with the following sentence: "The excess in the nature of violent, raging, immoderately passionate man is accurately protrayed in his handwriting, whether he be a criminal or not."

V.—Laupts reports briefly two cases of attempted suicide, for which there were no causes apparently sufficient to explain the desires of the individuals to take their life. It would appear in both instances as though the men had been influenced merely by a kind of "biophobia." These cases are reported simply to elucidate the etiology of suicide in certain instances.

No. II.

1st. The Rational Treatment of Criminals. By Dr. Penta.
2nd. On Identification. By Dr. Paul.
3rd. Problems in Homo-sexuality. By Dr. Moll.

I.—All the improvements that Penta pleads for would be readily subscribed to by those who have the welfare of the criminal classes at heart. His paper discloses a most atrocious condition of the prisons, and criminals shut up therein, in Naples, and we suppose that the same horrible treatment exists in other parts of Italy. The changes which Penta advocates are already generally adopted in Germany, France, England, and the United States, where in all these countries, although there is much

room for improvement, yet no such 'crimes against criminals' are practiced as in Italy. The paper is rational and moderate in the reforms advocated, which certainly ought to be introduced into Italy without delay. Although the author deals only with Italian prisons, yet his suggestions are worthy of study by all men in control of large reformatories.

III.—Moll discusses this subject at length, both as it relates to man and woman. He considers it first from a physiological standpoint, and shows that the same conditions exist in animals, and also that it has existed at all times. He next takes up the question as to whether homo-sexuality is a congenital or acquired faculty, and shows that it should properly be considered as acquired; that hetero-sexuality is the true congenital condition, that homo-sexuality is a somatic rather than a psychic quality. The next point he considers is the position of homo-sexuality in pathology, and the influence of heredity on individuals given over to this form of vice; he believes homo-sexuality to be a true pathological condition, but does not thereby mean to imply that persons practicing it are to be considered irresponsible. The relation of homo-sexuality to psychic degenerations is next made clear, and the author shows that although this subject has not been much studied, a certain relationship does exist. Many mistakes, he says, have been made from confounding homo-sexuality in men with male prostitution, and that these two conditions should be separated. Homo-sexuality in women has been less studied and the author has not added much on this point. In conclusion he speaks of what may be done to help these diseased individuals from a therapeutic standpoint, and thinks that in a certain, comparatively small, proportion much can be done, and that hypnotism is valuable, but that favorable surroundings and self-confidence of the patient are factors that are of importance also and should not be forgotten.

No. III.

1st. Crime and Criminal Statistics, with special reference to American Conditions. By Dr. Falkner.

2nd. New Studies in the Realm of Female Crime, Prostitution and Psychopathia. By Dr. Moraglia.

3rd. On Identification. II. By Dr. Paul.

4th. Crime in Spain. Professional Organization. I. By Dr. Salillas.

5th. Dr. Zakrewsky and his Relation to Criminal Anthropology. By Dr. Wenge.

I.—This is an interesting study of criminal statistics in America, compiled from the census reports. Dr. Falkner shows how hard it is to obtain reliable statistics, and how difficult to draw any correct conclusions from those we have. He explains in his paper how those occupied in getting figures on crime should prepare them for the next census. It is a valuable contribution to this question, and should be printed in some American journal, if it has not already appeared in one, in order that such persons as give especial study to this question may learn how reliable statistics on crime may be gathered. We cannot take the paper up

in detail, but the essential point seems to be that very careful tables should be drawn up distinguishing between major and minor crimes, and the exact number of days in jail for each, since statistics without such differentiation do not accurately represent the true amount of crime.

II.—Moraglia divides his subjects into two parts: 1st. Female Criminals and Prostitution; 2nd. Tribadism, Sapphism, and Sexual Perversion. The first half is a statistical study of the connection between women criminals and prostitution, with a brief report of a number of cases. He discusses this question from anatomical and physiological standpoints, and demonstrates what seems to him a very close relationship between crime and prostitution, especially in the physiological factor of menstruation, which he believes is apt to come on early in both female criminals and prostitutes. He also lays much stress on tattooing and onanism as important signs of degeneracy among criminals. Early menstruation and sexual desire, he shows, occur frequently in women who break their marriage vows, and to this class of criminals he devotes considerable attention. The first section of the article is supplied with numerous statistical tables, both of numbers of criminals and anatomical and physiological signs. Almost the entire second part of the paper is devoted to the relation of two cases, one of tribadism, the other of sexual perversion, and a discussion of the difference existing between these two classes of degenerates. To throw light on the mental condition of these two patients he gives numerous abstracts of letters written by them. The entire article is a serviceable addition to the study of crime among women.

Nos. IV and V.

1st. Considerations of the Question of Sexual Perversion. By Dr. Laupts.

2nd. On Identification. III. By Dr. Paul.

3rd. Crime in Spain. II. By Dr. Salillas.

I.—Laupts first describes "sexual perversion" as an abnormal form of love which certain individuals feel for other members of the same sex to which they themselves belong, and then considers homo-sexuality, for which, he says, it does not seem logical to look for any one cause, since it is probably induced by different elements; this he demonstrates by describing several cases. He believes that there are two categories of homo-sexualists, and that there is the same difference between them as between murderers and delinquents; and with the French school, as opposed to Lombroso, believes that crime is a result of evil social conditions. In homo-sexuality he sees a pure lack of nervous development, which is not associated with any visible psychical signs. He enters into a very full description of the classification of homo-sexuality, giving Magnan's, Ball's and Lacassagne's tables, and then forms one of his own. He divides homo-sexuality into two main classes: 1st, the morbid ("krankhafte"), and in these cases we have to deal with instances of perversion; 2nd, the symptomatic, in which cases "perversity" is often a factor. He also gives Laupts' classification, which is the most complicated of

all. He concludes his paper with a brief historical review of homo-sexuality, and finally adds a letter of Laupts, addressed to specialists on this subject, asking for information and answers to the questions enclosed, so that a more careful study can be made of the whole question. It is important that those who are studying "homo-sexuality" should refer to this letter, as they will thus learn all the points which should be taken into consideration in each case.

II.—Paul is an advocate of the Bertillon anthropometric system of classifying criminals, and in this and two preceding papers has reviewed the system at length, showing wherein it surpasses all others and how it can be improved. He pleads strongly for its more general use. His is a very clear resumé of the entire subject, and should be read carefully to be appreciated, since it is too long to do it justice in any brief review. In the final number he shows how far the system has been adopted in different countries and with what modifications.

III.—We are unable to abstract this and the former paper by Salillas in any satisfactory manner. They must be read from beginning to end to understand them satisfactorily, since the author's classification is peculiar, and the use of Spanish words of a technical order, for which there is no good English equivalent, renders it difficult to describe the existing conditions accurately. The article is full of minute detail, and seems to us more of interest from an historical rather than practical view. As a study of existing conditions it is a valuable contribution to the question of crime in different lands among different people.

Correspondence

Boarding Out the Insane in Massachusetts.

LETTER FROM DR. MOULTON.

To the Editor of the American Journal of Insanity:

Since sending my last communication to the Journal the annual report of the Massachusetts Board of Lunacy and Charity has been issued. The Board recommends "that all pauper insane persons now in city or town almshouses, or boarded in families by the Overseers of the Poor, be transferred as rapidly as circumstances will permit to the State institutions for the care of the insane, and to the care, custody and control of the Commonwealth." A provision follows for the support of such patients at a rate to the cities and towns less than the average cost to them under the present undesirable arrangements.

As there were 939 insane persons in almshouses on September 30, 1897, a majority of whom might be cared for in families, it is hoped this recommendation of the Board will be acted upon favorably. Then there would be material available for a *real* boarding-out system.

Very respectfully,

A. R. Moulton.

LETTER FROM MR. F. B. SANBORN.

To the Editor of the American Journal of Insanity:

I can hardly say I was surprised at Dr. Moulton's comment on Sir Arthur Mitchell's admirable criticism of the half-hearted way in which the Lunacy Board of Massachusetts has administered and described the boarding-out system for the past ten years. He says "it was most unfair and misleading." By a singular coincidence, it was exactly in those terms that Sir Arthur and Mr. Spence, of the Scotch Board, mentioned to me Dr. Moulton's report of their system (published in 1892) when I visited Scotland for the second time, in 1893, to see that system for myself. I should have been more surprised if Dr. Moulton had accepted Sir Arthur's remarks in the spirit in which that experienced friend of the insane made them. But it does startle me a little to read Dr. M.'s explanation of the Massachusetts situation since 1888—so much is it at variance with facts easily accessible to him, even at the distance of Philadelphia. His long article in the Boston Medical and Surgical Journal, where Sir Arthur's paper appeared, and to which Dr. M. refers

your readers, is more "misleading" (to quote his own term), because more in detail, and neither of them shows the exact state of the case. In brief, he says that the number of State patients has so fallen off, and the city and town authorities are so bent on sending their patients to almshouses, that his successor, Dr. Woodbury, has been unable to find patients for boarding-out.

Now, in the reports of the Board whose officer Dr. Moulton was during 1890 and 1891, the number of the Massachusetts insane in almshouses and unsupervised families was given as 967, July 1, 1889, and 850 in 1890; and by the latest report the number, July 1, 1897, was less than 1,060. As the whole number of the city and town insane poor at that date is given as 5,003, while in 1889 it was but 3,492, it is evident that a much larger proportion of them were in almshouses at the first date than now, and that no very large number can have been withdrawn by the overseers of the poor and (as Dr. Moulton expresses himself) "landed in a wretched almshouse"—since in eight years the number outside the hospitals has increased but 100, or at the rate of 12 a year, while in the hospitals they have increased from 2,764 to 4,250, or 184 each year. During this period the town insane boarded in families under State supervision have increased from 50 in '89 to 69 in '97; while the State cases have fallen from 46 to 31.

Let us now look at the actual figures of boarding out from August, '85, to February, '98. Up to August 4, 1888, when the Lunacy Board, in whom Dr. M. "never saw evidence of enmity to the boarding-out system," put a stop to all boarding for months, I had personally placed in families 180 insane persons, or at the rate of 60 a year; up to the present date (February 21, 1898) only 450 have been so placed. Since I was stopped from continuing the work only 270 have been boarded out in 8½ years, at the rate of only 32 a year. And of those, about 170 were placed by Dr. Moulton in the two and two-thirds years that he held office as my successor. During the 6½ years since he resigned Dr. Woodbury, his successor, has boarded out but 100 persons (nominally 104), and those by years as follows: In '91-2, 47, 35 of whom were town patients; in '92-3, 20, 12 of them town patients; in '93-4, 14 (8 town patients); in '94-5, 11, unclassified; in '95-6, 8 (4 town patients); in '96-7, 4, of whom 2 were town patients. His yearly average has therefore been 16, against my 60 and Dr. Moulton's 64; and even that small average fell to 4 last year. If that is not growing "small by degrees and beautifully less," what would be?

Yet the stock to choose such patients from was constantly growing greater. In my three years the average of chronic patients committed in the whole State was 982; in Dr. Moulton's three years it was 1,183; in Dr. Woodbury's six years it has been 1,390. These figures may not be exact, but they were reported by Dr. Moulton and Dr. Woodbury, and as they proceed on the same basis from year to year, they are good for purposes of comparison; and they indicate that while I placed out one in 16 of the available patients, and Dr. Moulton one in 18, Dr. Wood-

bury has placed out only one in 43. This does not show that "Dr. Woodbury has labored hard to board out patients," unless there were "real enemies in the Board of Lunacy" against the system, which Dr. Moulton (from Philadelphia) denies to have been the fact. The figures given by him as remaining at the end of each year simply show that, while the number placed out since 1891 has been small and decreasing, the system has worked so well that those previously sent out remained in families.

In his Boston article Dr. Moulton makes two statements (the first cited with approval from Dr. Hildreth) which hardly look well when placed side by side. "Experience has shown that convalescent cases receive the most benefit from boarding out." "Patients whose disorder is acute are not legally permissible for boarding out." As "convalescent" usually means "recovering from an acute attack," it is hard to see how convalescents can be "chronic," except in those very few cases where recovery occurs after two years' treatment; in fact, among the 180 patients whom I placed out, not six could have been termed "convalescent"; and I doubt if the proportion has since been increased. If Dr. Woodbury or Dr. Hildreth will give exact figures we should soon see which class benefited most; but certainly the law, which I drew, only authorized (in 1885) the boarding of "insane persons of the chronic and quiet class" and (in 1886) "insane persons discharged without recovery" from hospitals and asylums. This same law of '86 made it impossible for overseers of the poor to withdraw their patients from hospitals without the consent of the hospital, and it is still in force. Those who have been thus withdrawn were mostly discharged because they were considered incurable and because their places were needed in the constant overcrowding of our establishments for recent cases. Instead of being sent "to wretched almshouses" they either went to the care of their friends or (generally) to fairly good local asylums, most of which are better places for them than the State hospitals were 30 years ago.

I am glad that Dr. Moulton sees an unfitness in almshouses for good boarding-out patients; it was not always thus. The Board which appointed him had just before caused the removal to an almshouse ward of nearly forty patients who had been living comfortably in families; there they sat idle for months, and must have been seen by him in his monthly visits, yet I never heard that he took any pains to remove them. Five more patients were living, when he took office, in the best boarding place for that class I ever saw; he joined in the (illegal) attempt of his Board to send these women back to the almshouse; and when Miss Cooke refused to consent to that, as she had done before, and her county judge put three of them under her legal guardianship, Dr. Moulton reported to the enemies of boarding-out in his Board (there *were* such then, to my certain knowledge), "that said persons are each and all restrained of their liberty by reason of alleged insanity by said Cooke." The fact was, and Dr. Moulton knew it well, that they *were* insane, were perfectly well treated, and would not leave Miss Cooke's kindly care to go to any

hospital, much less to an almshouse. Yet he joined with the persecutors of this good woman, and consented to the meanness of depriving her of the petty stipend the State had agreed to pay, because she would not be a party to their illegal removal to an almshouse. And when she applied for the customary license to keep a private asylum (which was granted her years afterwards), I do not find that Dr. Moulton tried to remove the hostility of the Board, whose self-love she had wounded by her fidelity to her patients. He also joined with them in their advocacy of the costly and otherwise objectionable chronic asylum at Medfield.

Concord, Feb. 22, 1898. F. B. SANBORN.

RUSH MONUMENT COMMITTEE.

SYKESVILLE, March 25, 1898.

TO THE EDITOR:

The following subscriptions to the Rush Monument Fund have been received from members of the American Medico-Psychological Association since the appointment of the Committee of the Association, May, 1897:

1897.

July 1.—	From Dr. G. Alder Blumer, Utica, N. Y. . .	$5 00
Sep. 13.—	From Dr. D. R. Burrell, Canandaigua, N.Y. .	5 00

1898.

Mar. 11.—	From Dr. Gershom H. Hill, Independence, Ia.	10 00
"	From Dr. F. C. Hoyt, Clarinda, Ia.	5 00
"	From Dr. C. S. Applegate, Clarinda, Ia. . .	2 00
"	From Dr. Anna Burnett, Clarinda, Ia. . .	2 00
"	From Dr. A. T. Gundry, Clarinda, Ia. . . .	1 00
"	From Dr. H. A. Gilman, Mt. Pleasant, Ia. .	5 00
		$35 00

GEORGE H. ROHÉ,
Chairman Committee.

LETTER FROM DR. WOODBURY.

TO THE EDITOR OF THE JOURNAL OF INSANITY:

Extracts from an address by Mr. F. B. Sanborn before the Legislative Committee of Massachusetts concerning the care given the insane, their increase in numbers, the recoveries resulting, and the increase in insane paupers, with the merits and demerits of these subjects from the speaker's standpoint, have appeared in several public prints, and to any one not fully cognizant of the conditions in the State are misleading.

His assumption that the increase of insane, or, as he neatly puts it, of the *visible insane*, since 1868, is largely due to "the aggregation of the insane in masses," which has not only failed to check their increase

but has greatly promoted it, is quite an individual opinion; also that to the same cause is due the fact that within the last thirty years the insane have trebled in number while the population of the State has only doubled, and that the policy followed by the State has diminished recoveries.

If we accept such statements as these we must acknowledge that all the earnest and unselfish devotion of those in charge of hospitals, the scientific research and treatment, which have been especially marked in the last decade, have amounted to nothing, and that these specialists have not only failed to keep up with other branches of our profession, but have retrograded, seriously and culpably.

Has there been any increase in the number of insane in this State? and, if so, to what extent? What is the apparent, and what the real increase? The following table shows that there has been an increase, but with diminishing ratio:

	Aggregate Population.	Visible Insane. Whole No.	Visible Insane. No. per 1000.
Sept. 30, 1870	1,457,353	2190	1.5
" 1875	1,651,902	2606	1.57
" 1880	1,783,086	3724	2.09
" 1885	1,941,465	4543	2.34
" 1890	2,238,943	5700	2.54
" 1895	2,500,183	6768	2.71

The apparent percentage of insane in 1870 is small, too small. The data furnished at that time are not so complete as in later years, owing to imperfect returns from towns. A constant pressure has been made in the past thirty years upon town officials to insure thoroughness and care, and now these returns, supplemented by reports of visitation of almshouses and private families, are giving much more reliable statistics than could be obtained in former years. In addition to this, our knowledge of the actual number of the insane in the State has recently been made still more complete by investigations made by a physician skilled in the diagnosis and treatment of insanity, who personally visited and examined all inmates of almshouses and boarders in private families, to determine their mental condition. The result of these examinations was the addition of a large number to our list of insane.

Overseers of Poor are now cognizant of the fact that the man who was formerly considered "just a little off," and not returned as insane, is insane, and must be so declared in reports. Add to this the knowledge acquired by these same officials of the real value of a hospital for the insane, and we see why the apparent increase of insanity is greater than the real. "The visible insane" now comprise nearly all the insane. Formerly a large number of the insane were invisible, kept at home by friends and not reported, therefore not known at the central office. At that time asylums for the insane were looked upon with much distrust by the average inhabitant, and usually only those people were sent to such a place whom it was impossible to keep at home. Now the reverse is true. The hospital is the first place thought of.

Another factor is the accumulation of chronic cases, who, under systematic rules and hygienic surroundings, live to a greater age. These swell the numbers and make the existing percentage high.

While our population has doubled and the insane under supervision has increased a little more than correspondingly, I am unable to see that the number of insane paupers has quadrupled, as stated by the speaker. We will say that there were in 1867, in round numbers, twenty-five hundred insane people under public supervision, and eight hundred supported at private expense, or about one-third of the entire number. At the present time, while the number of town cases is apparently large, it is in reality much less than it appears, for the reason that of late years, in order to secure a more moderate rate (no private patient being taken at any hospital for less than $3.50), friends of patients avail themselves of the opportunity to reimburse towns, paying the town rate, namely, $3.25. In this way we had last year 809 cases which appeared in the State reports as town cases, but which in reality are private cases. This number, added to the 743 private cases reported as such, makes 1550 private cases, a little more than twenty-five per cent of the whole number. While this is a falling off from the thirty-three per cent of thirty years ago, it certainly is not so decided a drop as from one-third to one-ninth, or from thirty-three per cent to eleven + per cent.

"Aggregating the insane in masses" does not necessarily mean overcrowding. Patients may be crowded in a small hospital as easily as in a large one. The size of a hospital is not half so important as the number put into it. A hospital like Worcester, with its numerous and large wards, can classify and take care of its patients even though it has a large number. Great harm can and does result from overcrowding, but not necessarily from aggregation of patients, properly classified in a large hospital.

Recoveries,—why are less reported now than thirty years ago? Because more care is exercised in determining what constitutes a recovery, and by use of different methods of tabulation. In the early years of reporting admissions, recoveries, etc., from hospitals, it was the custom (certainly in one hospital, and presumably in others in the State) to make up the list of recoveries at the end of the official year. A person was considered recovered if he had not returned for further treatment; in other words, he was considered recovered if he had not again needed and received hospital care. Under the head of recoveries were given nearly if not quite all those whom we now discharge as "much improved," there being at that time no such distinction made. A marked difference is noted in recoveries as tabulated to-day, from the fact that our tables are based upon the condition of patients at the time of discharge. It would seem as if this difference in methods would account largely for the apparent diminution in the number of recoveries.

Another factor may be mentioned, and that is the character of first

admissions to hospitals. Taking for a standard of recent cases those whose insanity has existed less than a year, and for chronics more than a year, we find that the recent or probably curable types reported are less in number than they were ten years ago. At that time, 1887, the percentage was 62.95, while for 1897 it was 50.79, a decided decrease in the material from which we may expect the most of our recoveries.

Were the crowding of our large hospitals a hindrance to recovery, there has been no time for the last twenty years when this would be more apparent than in the years just previous to the opening of Medfield Asylum. It is well known that every bit of available floor space in our hospitals was occupied then at night by cot beds, in some hospitals over three hundred being made up each night. I do not wish to be understood as endorsing overcrowding, or believing that it can be anything but injurious, but that it *largely* diminishes recoveries during these years is not proven, as the following table, showing the number of admissions and recoveries within the year at the five State hospitals, from 1893 to 1897 inclusive, will verify.

RECORD OF CASES WITHIN THE YEAR.

	1893	1894	1895	1896	1897	Mean
Number admitted.....	1732	1731	1707	1884	1742	
Of these recovered.....	223	183	185	202	192	
Being per cent.....	12.88	10.56	10.84	10.72	10.87	11.2

The above table[1] indicates that in spite of the overcrowding which existed the number of recoveries did not materially decrease, and it would seem a proof of the benefit of modern scientific treatment that the number of recoveries was kept up in spite of the ill effects of overcrowding; also a proof that the increase in the number of our insane is not due to the "failure to make recoveries."

The increase in the number of our insane must be accounted for in other ways, and it seems to me to be chiefly due to two causes: first, to the regular increase of our population, and second, to our knowledge of the actual amount of insanity—which had not previously been ascertained.

The good work of our hospitals, and the resultant benefit to the community, should not be based entirely upon the number of recoveries. Those patients who are discharged as much improved and improved, who become partly or wholly self-supporting, are to be considered, as they are a large factor. Likewise we should not forget that many of those remaining are so improved mentally and physically as not only to require less care themselves, but in very many cases to be able to labor under supervision and to assist in the care of those less fortunate.

Therefore it seems safe to say—

[1] Compiled from Reports of State Board of Lunacy and Charity.

1st. That the increase in our visible insane is due principally to an increase in population and to a more thorough investigation.

2d. That the decrease in the number of recoveries reported between 1868 and 1898 has been due to different methods of reporting them and to a more careful diagnosis, and that there has been a perceptible gain in recent years.

3d. That while there has been an increase in the number of insane paupers in thirty years, the percentage is small and will probably be no larger.

CHAS. E. WOODBURY,
Inspector of Institutions, Mass. State Board of Lunacy and Charity.

BOSTON, *March* 18, 1898.

A Quarterly Bibliography of Psychological Literature

(*Extracted, by permission, from the Index Medicus.*)

BOOKS.

Bonfigli (Clodomiro). I pervertimenti sessuali. Roma, 1897, frat. Capaccini. 23 p. 12°.

Browning (William). The normal and pathological circulation in the central nervous system. (Myel-encephalon.) Original studies. Phila., 1897, J. B. Lippincott Comp. 171 p. 2 pl. 8°.

Collet (F. J.). Les troubles auditifs dans les maladies nerveuses. Extrait de deux mémoires couronnés par l'Académie de Médecine (Prix Meynot, 1896). Par., 1897, Masson et Cie., Gauthier-Villars et fils. 182 p. 12°.

Cramer (A.). Gerichtliche Psychiatrie. Ein Leitfaden für Mediziner und Juristen. Jena, 1897, G. Fischer. 193 p. 8°.

Dana (Charles L.). Text-book of nervous diseases—a compendium for the use of students and practitioners of medicine. 4th ed. N. Y., 1897, W. Wood & Company. 634 p. 3 pl. 8°.

Herold (Justin). A manual of legal medicine. For the use of practitioners and students of medicine and law. Phila., 1898, J. B. Lippincott Comp. 693 p. 8°.

Taylor (Alfred Swaine). A manual of medical jurisprudence, revised and edited by Thomas Stevenson, 12. Am. edited with citations from the 12. English edition, by Clark Bell. N. Y. and Phila., 1897, Lea Brothers & Co. 848 p. 8°.

PAMPHLETS.

Allison (H. E.). What constitutes an insane criminal, and what status does he occupy? Albany M. Ann., 1897, xviii, 569-582.

Athanassio (A.). Les troubles trophiques dans la paralysie générale. Arch. de neurol., Par., 1897, 2. s., iv, 390-396.

Barr (M. W.). President's annual address. J. Psycho-Asthenics, Faribault, Minn., 1897-8, ii, 1-13.

Beach (F.). The mentally feeble child and how to train him. Pediatrics, N. Y. & Lond., 1897, iv, 490-501.

von Bechterew (W.). Ueber die kunstliche Hervorrufung der Sinnestäuschungen bei an hallucinatorischen Formen von Wahnsinn leidenden Alcoholikern. Centralbl. f. Nervenh. u. Psychiat., Coblenz & Leipz., 1897, n. F., viii, 505-508.

Bell (C.). Judicial evolution as to criminal responsibility of inebriates. Quart. J. Inebr., Hartford, 1897, xix, 369-373.—Medical expert testimony. Med. Leg. J., N. Y., 1897-8, xv, 161-168.—The sub-conscious mind; subliminal consciousness. Med. Leg. J., N. Y., 1897-8, xv, 129-144.

Blumer (G. A.). The medical and material aspects of industrial employment for the insane. Am. J. Insan., Balt., 1897-8, liv, 159-166.

Bock (C.). Auto-intoxication and its relation to nervous diseases. J. Psycho-Asthenics, Faribault, Minn., 1897-8, ii, 14-21.

Bresler. Analyse eines Falles von Melancholie mit Verbigeration. Neurol. Centralbl., Leipz., 1897, xvi, 929-943.

Brouardel (P.). Les procès en responsabilité médicale; procédure et rôle du médecin-expert. Ann. d'hyg., Par., 1897, 3. s., xxxviii, 432-441.

Bruce (L. C.). The home treatment of senile insanity. Edinb. M. J., 1897, n. s., ii, 589-591.

Bucknill (Sir John Charles). [1817-1897.] Clapham (C.). Obituary: citizen-soldier and psychologist. J. Ment. Sc., Lond., 1897, xliii, 885-889.

Bunts (F. E.). A case of Jacksonian epilepsy; operation and relief of symptoms. Cleveland J. M., 1897, ii, 499-501. [Discussion], 513.

Burgess (T. J. W.). The certification of insanity. Canada M. Rec., Montreal, 1896-7, xxv, 768-771.

Burr (C. W.). Hysteria in children. J. Am. M. Ass., Chicago, 1897, xxix, 1151.

de Busschere. Les aliénés criminels et les maisons-asiles. Ann. d'hyg., Par., 1897, 3. s., xxxviii, 368-374.

Campbell (K.). A case of chronic mania, with notes on treatment. J. Ment. Sc., Lond., 1897, xliii, 829-832.

Cases (On) of melancholia in hospitals for the insane; by a privileged ex-patient. J. Ment. Sc., Lond., 1897, xliii, 818-822.

Channing (W.). Characteristics of insanity. Boston M. & S. J., 1897, cxxxvii, 585; 613.

Charon (R.). A propos de l'organisation médicale des asiles d'aliénés. Ann. méd.-psychol., Par., 1897, 8. s., vi, 411-425. Also: Echo méd. du nord, Lille, 1897, i, 556-559.

Clark (L. P.). Report of a case of asthmatic paroxysms taking the place of epileptic fits. Boston M. & S. J., 1897, cxxxvii, 622.

Coleman (J. E.). Hysteria. Peoria M. J., 1897, ii, 449-455.

Colucci (C.). Contribuzione alla istologia patologica della cellula nervosa in alcune malattie mentali. Gior. d. Ass. napol. di med. e nat., Napoli, 1897, vii, 162; 193.

Cross (R.). Results of thyroid feeding in insanity. Edinb. M. J., 1897, n. s., ii, 471-476.

Crothers (T. D.). A case of dementia and alcoholic mania. Quart. J. Inebr., Hartford, 1897, xix, 374-379.

Crothers (T. D.). Some new clinical studies of inebriety. Albany M. Ann., 1897, xviii, 588-592.

De Arcangelis (E.). Le stimmate epilettoidi nei criminali alienati. Riv. sper. de freniat., Reggio-Emilia, 1897, xxiii, 384-406, 3 ch.

De Boeck. De la responsabilité et notamment de la responsabilité partielle. Ann. Soc. de méd. lég. de Belg., Charleroi, 1897, ix, 72-75.

De Busschere. Les aliénés criminels et les maisons asiles. Ann. Soc. de méd. lég. de Belg., Charleroi, 1897, ix, 60-71.

Dercum (F. X.). Functional nervous diseases; pathological considerations as a guide to treatment. Ann. Gynec. & Pediat., Bost., 1897-8, xi, 166-174.

De Sanctis (S.). Les maladies mentales et les rêves. [Transl.] Ann. Soc. de méd. de Gand, 1897, lxxvi, 177-183.

Dewey (R.). Destitute insane convalescents. Char. Rev., N. Y., 1897-8, vii, 666-673.

Dheur (P.). La musique et les aliénés. [Abstr.] J. d. hyg., Par., 1897, xxii, 587-592.

Dolsa (L.). Genesis psicopatica. Rev. de cien. méd. de Barcel., 1897, xxiii, t. 2, 161-164.

Dufour. Tentative de suicide simulant une tentative de meurtre. Ann. d'hyg., Par., 1897, 3. s., xxxviii, 429-434.

Durante (F.). La nervastenia cerebro-spinale associata al morbo di Ménière. Corriere san. Settim., Milano, 1897, viii, no. 45, 5-7.

Epidémie de folie religieuse au Brésel. Ann. méd.-psychol., Par., 1897, 8. s., v, 342; 8. s., vi, 163; 326; 523.

Esquirol. La folie de Théroigne de Méricourt. Chron. med., Par., 1897, iii, 641-647.

Falk (M. L.). [Microscopical alterations of the kidneys and liver in 52 cases of psychoneurosis.] Vestnik klin. i. sudeb. psichiat. i nevropatol., St. Petersb., 1897, xii, 1-58.

Falkenberg (W.). Ueber Familienpflege Geisteskranker. Allg. Ztschr. f. Psychiat. [etc.], Berl., 1897, liv, 553-587.

Féré (C.). Zoophile et zoophobie. Belgique méd., Gand-Haarlem, 1897, ii, 641-653.

Féré (C.). Note sur le réflexe pharyngien chez les epileptiques. Compt. rend. Soc. de biol., Par., 1897, 10. s., iv, 967.

Fox (W.). Notes on some cases of toxic neuroses. Australas. M. Gaz., Sydney, 1897, xvi, 444-447.

France (E.). Tuberculosis in the insane; its prophylaxis. J. Ment. Sc., Lond., 1897, xliii, 723-732.

Fraser (D.). Hysteria as a psychosis. Glasgow M. J., 1897, xlviii, 401-418.

Francotte (X.). Deux exemples de la forme affective du délire généralisé Verwirrtheit (confusion mentale). Bull. Soc. de méd. ment. de Belg., Gand et Leipz., 1897, 255-273.

Friedmann (M.). Weiteres zur Entstehung der Wahnideen und über die Grundlage des Urtheils. Monatschr. f. Psychiat. u. Neurol., Berl., 1897, i, 455; ii, 10; 120; 278; 353.

Garnier (P.). Le suicide collectif, au point de vue medico-legal. Méd. mod., Par., 1897, viii, 745-747.

Godding (W. W.). Active treatment in general paralysis of the insane. Brit. M. J., Lond., 1897, ii, 1407-1409.

Goldscheider. Ueber die Bedeutung der Reize für Pathologie und Therapie im Lichte der Neuron-Theorie. Verhandl. d. Cong. f. innere Med., Wiesb., 1897, xv, 419-426.

Greidenberg (B. S.). [Observations in psychiatric jurisprudence. (Two cases of moral insanity.)] Vestnik klin. i sudeb. psichiat. i nevropatol., St. Petersb., 1897, xii, 356-390.

Gunn (R. A.). Insanity and insanity laws. Med.-Leg. J., N. Y., 1897-8, xv, 179-191.

Hobhause (E.). Case of general paralysis, commencing with a period of melancholia, and terminating very rapidly. J. Ment. Sc., Lond., 1897, xliii, 827-829.

Homén (E. A.). Nya bidrag till kännedom om en säregen familjesjukdom under form af progressiv dementia. [Nouvelles observations sur une singulière maladie de famille sous forme de démence progressive. Rés. p. xl.] Finska läk.-sällsk. handl., Helsingfors, 1897, xxxix, 1369-1387.

Hoppe. Der Alkohol in Irrenanstalten. München. med. Wchnschr., 1897, xliv, 1182.

Hospital (P.). Etablissements d'aliénés; de l'utilité des notes mensuelles. Ann. méd.-psychol., Par., 1897, 8. s., vi, 395-410.

Hughes (C. H.). Suicide. Alienist & Neurol., St. Louis, 1897, xviii, 502-509.

Inability to speak and defence to criminal proceedings. Brit. M. J., Lond., 1897, ii, 1671.

Joire (P.). De la suggestion mentale; expériences nouvelles. Rev. de l'hypnot. et psychol. physiol., Par., 1897-8, xii, 104-111.

Jones (R.). Electric lighting in asylums, with some general suggestions, including details of the installation at the London County Councils Asylum, Claybury. J. Ment. Sc., Lond., 1897, xliii, 753-797.

Kalischer (S). Ein Fall von Zwangsvorstellungen und Berührungsfurcht in Kindesalter. Arch. f. Kinderh., Stuttg., 1897, xxiv, 47-55.

Kauffmann. Unusual alcoholic delirium. Birmingh. M. Rev., 1897, xlii, 302-304.

Kéraval (P.). L'état physique des aliénés; sommeil et sensibilité. Belgique méd., Gand-Haarlem, 1897, ii, 654-661. Also: Echo méd. du nord, Lille, 1897, i, 527-531.

Kiernan (J. G.). Insane confessions, errabund lunatics, the corpus delicti and crime. Alienist & Neurol., St. Louis, 1897, xviii, 560-575.

Kinnear (B. O.). The action of the nervous system over the nutritive processes, in health and diseases. Alienist & Neurol., St. Louis, 1897, xviii, 538-546.

Knecht. Ueber den Werth der Degenerationszeichen bei Geisteskranken. München. méd. Wchnschr., 1897, xliv, 1148.

Kraïnsky (N.). Zur Pathologie der Epilepsie. Allg. Ztschr. f. Psychiat. [etc.], Berl., 1897, liv, 612-665.

Krauss (W. C.). The percentage of heredity in the New York State insane. Medicine, Detroit, 1897, iii, 988-994.

Lemesle (H.). Criminels aliénés. Rev. de l'hypnot. et psychol. physiol., Par., 1897-8, xii, 114-117.

Lentz. Des relations entre les psychoses, la dégénérescence mentale et la neurasthénie. J. de neurol. et hypnol., Par., 1897, ii, 432-437.

L'Hoest (L.). La contagion de la folie. Gaz. méd. de Liége, 1897-8, x, 16. Also: Ann. Soc. méd.-chir. de Liége, 1897, xxxvi, 449-456.

Liégeois. La question des suggestions criminelles; ses origines; son état actuel. [Rap.] Rev. de l'hypnot. et psychol. physiol., Par., 1897-8, xii, 97-104.

Lombroso (C.). Les conquêtes de la psychiatrie. Rev. scient., Par., 1897, 4. s., viii, 577-583.

McDowall (T. W.). The insane in India and their treatment. J. Ment. Sc., Lond., 1897, xliii, 683-703.

Maclachlan (J. T.). On certifying lunatic patients and the general principles of treatment. Glasgow M. J., 1897, xliii, 196-200.

Magnan. [Valeur séméiologique des délires systématisés.] [Rapp.] Bull. Acad. de méd., Par., 1897, 3. s., xxxviii, 445-452.

Marandon de Montyel (E.). Du diagnostic différentiel de la paralysie générale et du saturnisme paralytique. Bull. méd., Par., 1897, xi, 1105-1109.

Marandon de Montyel. Contribution à l'étude de la paralysie générale régressive ou pseudo-paralysie générale. Gaz. hebd. de méd., Par., 1897, n. s., ii, 1153-1158.

Martin (J. C.). A case of melancholia with calcification of the dura mater. Brit. M. J., Lond., 1897, ii, 1261.

Mills (C. K.) and Mary A. Shively. Preliminary report, clinical and pathological, of a case of progressive dementia. Am. J. Insan., Balt., 1897-8, liv, 201-211, 7 pl. [plates are paged.]

Mitchell (Sir A.). The insane poor in private dwellings in Massachusetts. Boston M. & S. J., 1897, cxxxvii, 457-460.

Mitchell (S. W.). An analysis of three thousand cases of melancholia. J. Nerv. & Ment. Dis., N. Y., 1897, xxiv, 738-746.

Moulton (A. R.). The insane poor in private dwellings in Massachusetts. Boston M. & S. J., 1897, cxxxvii, 616.

Myer (A.). Demonstration of various types of changes in the giant cells of the paracentral lobule. Am. J. Insan., Balt., 1897-8, liv, 221-226, 3 pl.

Naecke. Les distractions, visites, théatre, excursions, musique, etc., dans le traitement des aliénés. Rev. de psychiat., Par., 1897, n. s., 259-269.

Norbury (F. P.). The insanity of adolescence. Med. Herald, St. Joseph, 1897, n. s., xvi, 438-447.

Ohlmacher (A. P.). An abstract of the morbid anatomic findings in four cases of epilepsy. Phila. M. J., 1898, i, 33-35.

Pardo (G.). La resistenza elettrica in alcuni psicopatici. Bull. d. Soc. Lancisiana d. osp. di Roma, 1897, xvii, fasc. 1, 1-15.

Parisot (P.). Quelques caractères des hallucinations de l'ouïe dans la démence sénile délirante. Rev. méd. de l'est, Nancy, 1897, xxix, 585-594.

Peeters (J. A.). L'assistance et le classement des aliénés. Bull. Soc. de méd. ment. de Belg., Gand et Leipz., 1897, 238-247.

Powell (F. M.). Care of the feeble-minded. Char. Rev., N. Y., 1897-8, vii, 674-686, 1 tab.

Reed (C. A. L.). Asylum reforms from the gynecological standpoint. N. York M. J., 1898, lxvii, 4-8.

Régis (E.) et L. de Perry. Note sur l'existence et la fréquence de la paralysie générale sans délire. J. de méd. de Bordeaux, 1897, xxvii, 554.

Report of the committee of the American Neurological Association upon the after-care of the insane. J. Nerv. & Ment. Dis., N. Y., 1897, xxiv, 658-662.

Riedel (O.). Ueber psychische Infection und inducirtes Irresein. Vrtljschr. f. gerichtl. Med., Berl., 1897, 3. F., xiv, 235-251.

Rieger (C.). Die Psychiatrie in Würzburg seit dreihundert Jahren. Verhandl. d. phys.-med. Gesellsch. zu Würzb., 1897, n. F., xxxi, 123-170.

Robertson (W. F.). The normal history and pathology of the neuroglia in relation specially to mental diseases. J. Ment. Sc., Lond., 1897, xliii, 732-752.

Roncoroni (L.) e L. Orlandi. La pressione sanguigna negli alienati. Gazz. med. di Torino, 1897, xlviii, 561-563.

Sander (M.). Ein Fall von posteklamptischen Irresein mit rückschreitender Amnesie. Allg. Ztschr. f. Psychiat. [etc.], Berl., 1897, liv, 600-611.

Sankey (E. H. O.). A case of glycosuria in the insane. Brit. M. J., Lond., 1897, ii, 1250.

Sawyer (J. E.). Insanity in Michigan. Nat. Hosp. & San. Rec., Detroit, 1897, I, No. 3, 1-6.

Schultze (C.). Zusammenstellung der sich aus dem bürgerlichen Gesetzbuch für den Psychiater ergebenden, zum Teil neuen Gesichtspunkte für die Erstattung von Gutachten. Monatschr. f. Psychiat. u. Neurol., Berl., 1897, ii, 204-219.

Sciamanna (E.). Tic e paranoia. Riv. quindicin. di psicol. [etc.], Roma, 1897, i, 145-153.

Sexual (A) pervert. Texas M. Pract., Dallas, 1897-8, x, 96.

Shrady (J.). Mental unsoundness as affecting testamentary capacity. Med. Rev. of Rev., N. Y., 1897, iii, 587-597.

Siemens (F.). Casuistischer Beitrag zur gerichtlichen Psychiatrie. Gattenmord oder Selbstmord? Beide Ehegatten geistig gestört. Genuine oder traumatische Psychose des Ehemannes. Vrtljschr. f. gerichtl. Med., Berl., 1897, 3. F., xiv, 218-234.

Sinkler (W.) and F. S. Pearce. A study in epilepsy. Virginia M. Semi-Month., Richmond, 1897-8, ii, 537-549.

Sokalski (N. A.). [Investigation of the pulse and blood pressure in acute psychoses.] Vestnik klin. i sudeb. psichiat. i nevropatol., St. Petersb., 1897, xii, 88-155.

Somers (E. M.). Unexpected forms of death among the insane. Med. Rec., N. Y., 1897, lii, 659-661.

Spratling (W. P.). The education of the epileptic with especial reference to the value of industrial farms. Med. Rec., N. Y., 1898, liii, 10-13.

Stearns (H. P.). Heredity a factor in the etiology of insanity. Am. J. Insan., Balt., 1897-8, liv, 227-236.

Stiatti (C.). Un caso di follia precoce. Cron. d. manic. di Siena, 1897, xxiii, 120-126.

Stoner (A. P.). Contribution to the study of melancholia, with report of a case. Med. & Surg. Reporter, Phila., 1897, lxxvii, 486-490.

Taty (T.) et J. Toy. Des variétés cliniques du délire de persécution. Ann. méd.-psychol., Par., 1897, 8. s., v, 20; 193; 368; 8. s., vi, 78; 208; 366.

Taylor (J. M.). Hysteria in childhood and youth. Med. News, N. Y., 1898, lxxii, 1-4.

Thomsen. Des symptômes prodromaux de la paralysie générale, qui précèdent de longtemps la manifestation de la maladie. J. de neurol. et hypnol., Par., 1897, ii, 426-431.

Thomson (J. R. M.). A case of hysteria in a male. Intercolon. M. J. Australas., Melbourne, 1897, ii, 660-663.

Tippel. Ein Fall von schneller Genesung. Allg. Ztschr. f. Psychiat. [etc.], Berl., 1897, liv, 696-699.

Tomlinson (H. A.). A preliminary report upon the bacteriological examination of the cortex and cerebro-spinal fluid in forty-seven cases of insanity. Am. J. Insan., Balt., 1897-8, liv, 213-220.

Voisin (A.). Manie aiguë intermittente; coïncidence des accès avec les périodes menstruelles; arrêt de ces accès par la suggestion à l'état de veille. Rev. de l'hypnot. et psychol. physiol., Par., 1897-8, xii, 111-114.

von Wagner. Raubmord; Moral insanity; fragliche Epilepsie; Simulation von Geistesstörung; Verurtheilung. Wien. klin. Wchnschr., 1897, x, 883-889.

Wanke (G.). Psychotherapie. Beitr. z. wissensch. Med. Festschr. . . . d. Versamml. d. deutsch. Naturf. u. Aerzte . . . . Brnschwg., 1897, 294-302.

Weir (J.), jr. "In those days there were devils." Med. Rec., N. Y., 1897, lii, 810-813.

Wex. Mord- oder Selbstmordversuch? Ztschr. f. Med.-Beamte, 1897, x, 665-668.

Wise (P. M.). Physical health of the insane. Char. Rev., N. Y., 1897-8, vii, 661-665.

Wood (H. C.). Clinical note on repeating. Univ. M. Mag., Phila., 1897-8, x, 133-136.

Woods (O.). Notes on some cases of folie à deux in several members of the same family. J. Ment. Sc., Lond., 1897, xliii, 822-825.

Half-Yearly Summary

The SUMMARY of the present issue contains the usual references to structural improvements and advances in medical work and the training of nurses. The tendency to extended classification is indicated by reports from two colonies for epileptics, those of New York and Pennsylvania, and Dr. Godding emphasizes the value of this distinction in the experience at St. Elizabeth with separate buildings for these patients, a plan which has also been carried out at Petersburg, Va. The reports upon hydrotherapy from St. Elizabeth and Danvers reveal the possibilities of important and inexpensive therapeutic resources. Several institutions (Sheppard, Worcester, Northampton, and St. Lawrence) have adopted systems of case-recording, the feature of which is to be the bedside notes, and the filing and preservation of the original records, for the better utilization of the time of the physicians. At the Worcester Lunatic Hospital efforts in this direction have taken precedence, and the experience of a year shows the wisdom of the scheme of reorganization which was fully described in the SUMMARY of last April.

DISTRICT OF COLUMBIA.—*Government Hospital for the Insane, Washington.*—The Annual Report for 1897 deals almost entirely with medical subjects. The Board of Visitors urge upon the Government the necessity of measures for the prevention of malaria arising from the accumulation of alluvial deposit, sewage, and a rank vegetable growth choking up the river bed.

Separate provision for the epileptic insane has been in operation long enough to demonstrate its superiority over the former promiscuous arrangements. The Dix Buildings 1, 2 and 3 for the females, and Oaks 1 and 2 for the male epileptics, afford liberal accommodation for 150 of this class. Dix No. 3 is for the colored female epileptics. As yet no distinct provision has been made for the colored males, but it is the intention to provide a dormitory for them in the extension to the West Lodge, for which an appropriation is asked in the estimates for the coming year. In addition to the advantage of separate grounds for exercise, and that of a continuous night and day service of attendants, a

pleasant and liberal feature of these buildings is found in the broad piazzas that surround them, available in all pleasant weather for seats and promenades. The inmates enjoy them very much, the period of outdoor life being greatly extended thereby, the occupants avoiding or following the sun according to the season. These piazzas are open wards in the true sense of the word. St. Elizabeth, with its growing burden of feeble and old soldiers, is coming more and more to be an infirmary, a hospital in fact as in name. Congress at its last session provided by appropriation pavilion buildings for 150 of these veterans, and plans have already been prepared in which these open outdoor spaces of piazzas and corridors are a prominent feature.

The extension of the pathological building, now well advanced toward completion, will afford greatly improved facilities for microscopic, bacteriological and photographic work.

The experience of another year with the active treatment of selected cases of paresis by the wet pack with cold to the head and enforced rest followed by a thorough massage has not led to its abandonment; rather to a belief in its efficacy in a considerable percentage of the cases thus treated, in its power to effect at least a temporary improvement, and now and then an arrest in the progress of the disease for an indefinite period.

In 1893, hydrotherapeutic methods were tried at the Toner Building in connection with massage, rest, diet and other usual modes of treatment. The field was hardly favorable to any system of curative treatment, the patients then being for the most part physically broken down, exhausted by brain disease and other complicating disorders common to the chronic insane.

The choice of hydrotherapeutic processes was restricted by the resources of the hospital to hot, warm, and cold baths in tubs, the wet pack and an improvised douche consisting of rubber hose attached to the combined hot and cold faucets of a bath tub. Nozzles of different forms were constructed by the plumber for the individual need. The stimulative and revulsive effects were those first sought, not much being anticipated beyond what might be obtained through circulatory changes, especially those of a tonic character. With this object in view the wet pack and the cold douche came to be the most used. With selected cases these were used regularly, generally daily. Massage and passive exercise were combined in many of the cases.

With such subjects marked and immediate effects were scarcely to be anticipated. But with anticipations thus moderately pitched the results were almost without exception very gratifying, as shown in improved surface circulation and temperature, with gain in appetite, in body weight, in secretion, and in increase of the red blood corpuscles. In most of the cases the mental improvement was commensurate with the physical changes. After a time it was observed that a majority of the patients went to sleep in the pack with a considerable regularity. Their rest was better at night, so that hypnotics came to be less and less used, while

the wards were practically undisturbed by noise from the inmates at night.

The soothing effect of the pack in insomnia and excitement has been abundantly proved, also that it is absolutely safe if properly used, and that to the intelligent physician it is a most valuable aid in all the varied forms of brain disease. Of its action in other forms of disease Dr. Foster, who has carefully studied its effect in his observation of the cases at the Toner Building, says:

It has been found that not only do the applications of this system become more definite and certain to the mind of the physician by its continued use, but the range of application constantly widens, so definite are the physiological results and so varied the morbid states susceptible of direct relief. Take, for instance, its important therapeutic action in equalizing vascular tone and pressure and producing a steadier blood current, and consider its application to the great class of local congestions. As an example of this therapeutic action thus applied let me cite three cases of bronchitic asthma brought to these wards within the last fifteen months. They were all suffering with distressing orthopnœa, which had seriously interfered with sleep for many weeks, so that they were much reduced in flesh and strength, presenting the usual picture when occurring in subjects enfeebled by organic disease.

In each case the first night after the use of the pack refreshing sleep was secured, and the condition was gradually so alleviated that distressed breathing has practically disappeared in all, one having been discharged to the care of friends. I shall not attempt here to mention in detail the various physiological effects obtained by the use of water under varying thermic conditions, as well as those of pressure and impact. Suffice it to say that the effects in general sought for are obtained through reactions of the nervous system, and are mainly not the primary but secondary reactions. It may be appropriate to put forth one hypothesis which I have not seen expressed elsewhere, to the effect that the clearing and strengthening of mental processes, which has sometimes been very marked, is produced by direct cortical stimulation through the sensory nerves of the skin. These excitations having reached the body sensation area of the cortex tend to pass on, as the law is, to other associated systems of cortical cells. These powerful excitations by simultaneous discharge throughout the entire body-center may well force many association pathways which had become disused and difficult, and so affect the nutritive function of inactive cortical cells, thus affording the initiative to wider and wider effects throughout associated neurons. If the process be indeed as thus surmised, we have an agent of brain therapy unique in the directness as in the extent of its application.

An important principle, and one well recognized, lies in the susceptibility of individuals to education in the reaction process. From this it results that even a very considerable degree of feebleness, a dilated heart and degenerated vessels, conditions generally regarded as contra-indicating this treatment, have all responded with benefit after a careful and patient educational stage.

The chief contra-indication to the pack has been found in the existence of febrile temperature, the confinement of bodily heat aggravating this symptom.

The hydrotherapeutic apparatus now being set up at The Oaks is that perfected and used by Dr. S. Baruch in New York City. It consists of a marble-inclosed table containing mixing cylinders for hot and cold water connected with suitable supply, with thermometer and pressure gauge attached. The arrangement is such that, by turning certain revolving levers attached to the table, temperature and pressure of the water in whatever part of the apparatus may be in use can be rapidly varied at will, while the changes are indicated upon thermometer and gauge conveniently in view. Water may thus be accurately varied in temperature from that of ice water to that of steam, and in pressure to any point not exceeding 25 pounds.

A compartment of a large room, the former 10 by 18 feet, is provided with a slat floor above a cement-lined basin having an outlet to sewer at its most dependent portion. This compartment has its walls lined with marble and tiling, and contains a full-sized bath tub, a sitz bath, a circular needle douche about 6 feet high, formed of finely perforated parallel tubes, a rain bath, and a movable hose douche, with suitable nozzles. On the outer side of the compartment wall is a marble shampoo slab, with suitable floor and basin. To one side are three hot boxes, in which the patient may sit surrounded by air having the temperature of the hot room of a Turkish bath while the head is exposed to the ordinary air of the room. There are immediately connected with the main room by a corridor a series of small, well-warmed apartments provided with suitable couches for massage, packs, or for rest at suitable stages of the treatment.

Dr. Blackburn's Pathological Supplement to the Report contains the "Synopses of Post-mortem Examinations in One Hundred and Ninety-seven Cases of Internal Pachymeningitis."

INDIANA.—*The Northern Indiana Hospital for Insane, Longcliff, near Logansport*, reports the construction of a new cold store, with accessory offices for the care and issuance of all perishable subsistence supplies; also the construction of 25,000 square feet of vitrified brick pavement. Continued attention is being paid to improvements in pathological work and methods of clinical diagnosis. The training school established a year or more ago, in which attendance is obligatory, continues to elicit interest on the part of students and is bearing fruits.

ILLINOIS.—*The Illinois Western Hospital for the Insane*, located at Watertown, is to be ready for the reception of 350 patients on the 1st of April. Certain counties in the western part of the State will be assigned to this new hospital, resulting in transfers of patients from the Northern and Central Hospitals. Dr. W. E. Taylor, a physician of high standing and eminence in the profession, has been appointed superintendent.

—*The Central Insane Hospital at Jacksonville* is to establish its own water works.

IOWA.—*Iowa Hospital for the Insane, Independence.*—Dr. Albert M. Barrett, who is the third assistant physician and pathologist in this hospital, is spending a year in the Worcester Lunatic Hospital as a junior assistant, for the purpose of studying insanity in a clinical way in order to work in the new pathological laboratory of that institution under the direction of Dr. Adolph Meyer.

—The Legislature of Iowa, which is now in session, is likely to dispense with local boards of trustees and to substitute a Board of Control, consisting of three men, to have charge of all the State institutions.

MARYLAND.—*The Sheppard Asylum, Towson.*—Constant endeavor has been made to enlarge the scope and improve the character of the general medical and scientific work of the institution. A carefully devised system of records, to supplement the physicians' notes in the case books, has been put in operation, and the statistical facts of all the cases have been arranged upon a card index system, so that it is now possible to group together, for any purpose of study, the essential facts of all cases of any form of mental disturbance.

A new and larger room has been assigned to the laboratory, which has been gradually fitted up as needs have required. The value of such an adjunct to the clinical work is daily becoming more and more appreciated, and it does not seem at all improbable that as the work increases it will be necessary to enlarge not only the resources in this direction but the working staff.

MASSACHUSETTS.—*Worcester Lunatic Hospital.*—The last Annual Report, recently issued, contains the following reference to the organization of the medical work in the hospital:

"The plans for the reorganization of the medical work of the hospital have now been in operation a full year. As was perhaps inevitable in such an important and wide-reaching an undertaking, we find that we have not accomplished quite all that we had hoped, and that our plans have still to be perfected in many of their details; but the results already attained have been eminently encouraging, and fully warrant all the outlay in the way of time, energy or expense which has been found necessary in carrying them out. Although our work is greatly increased, no one would now for a moment think of returning to the old methods. Besides making an exhaustive study and full record in all recent cases, we have, so far as possible, compiled the histories of the older patients after the new plan, making them as full and accurate as the lapse of time since the inception of the disease would allow. We have also taken advantage of the relief given us from overcrowding (through the transfer of some two hundred chronic cases to the Medfield Asylum) to reclassify our patients, grouping together all of the recent cases, and those in

which the disease is still in a transition state, on the first two floors of the hospital, where they can more easily be observed.

"The staff of the hospital now consists of the superintendent, who is in charge of all the medical and administrative work of the hospital; he is assisted by the assistant superintendent, who is at the same time in direct charge of the acute cases of the female department; the second assistant is in charge of the acute cases of the male department; and the third and fourth assistants have the wards for the chronic patients. Each assistant physician has a junior assistant to help him. The supervision over the purely medical work of the hospital is put in the hands of a physician who is as far as possible free from routine and administrative duties, and who is director of the clinical and pathological work.

"The division of labor is carried out as follows: the first floors are reserved, as has been stated, for the observation cases; the second floors, for observation cases and some private patients; the third and fourth floors are occupied by patients who do not need continual clinical observation in the strict sense of the word, *i. e.* chronic cases and patients in stationary phases of their disease. Each physician has two floors of the male or female side under his charge.

"The patients are given a complete mental and physical examination as soon as possible after admission. The examination is made by the physician in charge, with the help of the junior assistant. The physician on the third and fourth floors also takes his share of examinations, since his medical duties are considerably less than those of the physician in charge of the observation cases. The history is taken by the junior assistant, from the patient, from the friends and by correspondence. As soon as the necessary data are at hand, the physician who examined the case reports to the staff meeting, makes a summary of the available facts and a diagnosis, which is submitted for discussion. A provisional prognosis is made, and where necessary the treatment is discussed. The further duty of the physician is to continue the record of the patient, with the help of the junior assistant. Notes are taken in the ward, at the medical round, and handed to the stenographer to be type-written. The clinical microscopy and analysis of urine, etc., are done by the junior assistant.

"In order to keep up a uniform arrangement and completeness of the records, the director of the clinical and pathological work outlines the scope and order of the history and the case record. He sees the patient with the physician in charge every second morning, and is responsible for the accuracy and usefulness of the record.

"The staff meetings take place from 11.30 to 12.30. The time is devoted to the report of the cases recently admitted, to those ready for discharge, and to matters of importance occurring in other patients. The report of deaths and autopsies is also considered. Frequently the patients themselves are brought before the staff for clinical demonstration.

"The autopsies are made by the physicians and junior assistants. The brain is usually examined by the director of the pathological work, and the plans for the future microscopical examination and the necessary

preparatory steps are outlined by him. The work is to some extent distributed among the junior assistants, according to their interest and ability.

"This general plan has given much satisfaction, and the attempt made to group the result of the year's observations has revealed a steady improvement of the material, and much evidence of a faithful elaboration of the plan adopted.

"Apart from the work directly referring to the patients, the medical spirit of the staff is further cultivated by regular weekly journal meetings. The liberal supply of books and periodicals allowed by the Board of Trustees makes a division of labor necessary. Each physician takes a number of journals and reports the contents briefly, frequently in connection with a short review of the whole field to which a given article belongs.

"During the winter months a course on neurology, embracing especially the anatomy of the nervous system, was given by Dr. Meyer; also occasional instruction on methods, clinical and pathological. Apart from the current work in the laboratory, the minute study of special specimens and the preparation of material to illustrate the normal histology of the nervous system were carried on.

"During the second term (January to March, 1897) a series of lectures and clinics to the students in psychology of Clark University was given, in which the medical staff of the hospital took part. During the summer school a course of ten lectures at Clark University and two clinical demonstrations at the hospital were arranged.

"This plan may safely be said to have grown, on a natural basis, out of the conditions present in the hospital, and to be the outcome of the medical needs of the institution. Its aim is to do the best that medical science can do for the patients, and to gather from the experience, systematically and conscientiously, all that may benefit the work. Thus it becomes incidentally a plan for research work, in the same way as every physician will try to use his experience for the future,—only with the advantage that the co-operation of ten physicians, with the same methods and the same end in view, will be likely to be more fortunate in the results of research than one physician alone can expect to be."

—*Taunton Lunatic Hospital, Taunton.*—The training school for nurses has now been in operation two years, and as time has gone on its value has become more apparent. Another year has been added to the course of study, making the full course for graduation three years. Hereafter all of the attendants will be required to be members of the school for two years, but the third year will be optional. The first two years are made compulsory in order to fit the attendants for greater usefulness while they are in the service of the hospital, and the third year is made optional, as it is evident that no one can become fitted for general nursing and to graduate as a trained nurse unless he is a volunteer in the work and has a love for it.

The exterior wood-work of the centre and old wings of the main building has been painted, and considerable painting has been done on the wards. Plans for the front gate-house have been made, and the cellar and foundation walls will be put in this autumn and the building completed next year. The cost of the bay window which is being built on the east middle wing will exceed the estimate, and an appropriation of $2000 will be needed to complete the bay and other necessary repairs on the west middle wing.

Dr. Ward returned to the hospital as pathologist the first of May, and under his supervision a very convenient and complete laboratory has been fitted up in the basement for pathological work, at a cost of about $1500.

—*Northampton Lunatic Hospital, Northampton.*—The medical staff is devoting much care to the new cases and to those whose mental condition offers any prospect of improvement. On admission a careful examination is made of each patient, and one of the staff is expected to spend some time with the patient, becoming acquainted with his condition and peculiarities, and making him feel at home as much as possible. Urinary analyses and examinations of the blood are made in every case as soon after admission as possible, and as frequently thereafter as necessary.

Patients suffering from acute mental troubles and those in any degree exhausted are at once put to bed, cared for by nurses who devote their whole time to two or three such cases.

The much-needed training school for nurses has been delayed, but instruction has been given daily at the bedside, where it is put to immediate use. A course of general instruction is to be given as soon as arrangements now under way can be perfected.

A better system of making records has grown up in the last two or three years. A full history of the case is obtained of friends at the time of admission or as soon after as possible, and for the first few weeks daily notes are made. On discharge a summary is entered in the case book.

Regular meetings of the staff will be held for consultation about all cases admitted and discharged, and to consider important matters that may arise.

Plans for infirmary wards are completed, but there is little expectation of their being built this coming year. Meanwhile, to facilitate the work, one ward on each wing will be fitted for the reception and observation of new cases, and one will be used as a sick ward.

Laboratory work is at present done under very unsatisfactory conditions. The changes which are expected to be made this year provide for a room well lighted and fitted for scientific work.

—*Danvers Lunatic Hospital, Danvers.*—The Annual Report contains the following reference to hydrotherapy:

"The prolonged tub bath and dry pack have not been used. As a rule, cold wet bandages have been applied to the extremities, each limb being bandaged independently of the others, thus permitting ordinary freedom of movements. The full cold pack by wet sheets has been so loosely applied that patients, if so disposed, could readily remove it unless prevented by the nurse, who always remains by the side of patients when in the pack. The time of application is limited to thirty minutes, and obstinate resistance is seldom encountered.

"In our experience, hydrotherapy is a most gratifying substitute for hypnotic and sedative drugs.

"It seldom fails to relieve insomnia, and several cases that could not be controlled by drugs readily yielded to the cold pack. It calms acute excitement, and chronic patients, subject to periodical disturbance, have had their attacks modified and cut short by the same means. Several cases of prolonged melancholia, on the verge of dementia, have been cured while being treated simply by the external application of water.

"In a number of instances obstinate constipation has been entirely relieved by the cold water girdle applied each evening. Cold sponging has been employed, and successfully, to reduce temperature. We have used cold baths for their tonic effects to a considerable extent for several years. Recently we have introduced the needle bath with douche table and other forms of apparatus for water treatment.

"Our personal experience with this form of hydrotherapy is too limited to warrant conclusions. However, its employment with cases of neurasthenia, anæmia, etc., at the Vanderbilt Clinic, New York, and the German Hospital in Philadelphia, has been so successful that we can but believe it will prove of much service in the lunatic hospital."

—*Boston Insane Hospital.*—In June of last year, by an act of the Legislature, the Boston Insane Hospital was placed under the care of a board of seven trustees, two of whom must be women. The trustees were appointed by the mayor of Boston, and the hospital then passed from under the control of the Commissioner of Institutions to that of the new board of trustees. On the board, as it is at present composed, are three physicians, all of whom have had practical experience in institutions for the insane. This board have also supervisory control of all the insane of the city now supported in State institutions.

In accordance with a recent vote of the board, the wards at Pierce Farm (190 beds) will be used exclusively for men, and one asylum ward at Austin Farm (112) beds will also be used for men. The other buildings at the Austin Farm will be used exclusively for women patients.

During the past year an unusual number of recent commitments have been received at the hospital, as it is the policy of the present management that the recent cases shall receive treatment within city limits instead of, as formerly, sending such cases away to State hospitals.

—*Hospital for Dipsomaniacs and Inebriates, Foxborough.*—The classes in physical training continue to confer marked benefits upon the patients.

The instructor, Mr. Ernst Hermann, has made methodical examinations of each person, first when in proper condition to commence the class work and again when about to be discharged from the hospital. Some of the patients are necessarily excused from attendance because of advanced age or physical disabilities. The amount of gain varies greatly among the individuals, and for various reasons—physical infirmities, organic disease, age, lack of desire to participate in the exercise, or, on the contrary, great willingness to take it. The larger part of the patients require at first much urging to overcome the sluggishness and inertia which results from their diseased condition, but there now appears to be less unwillingness to participate than when the classes in physical training were first established. It is noted that the individuals who attend the classes regularly and with interest are quite apt to speak voluntarily and happily of the benefit they have derived from the training.

Vertical tracings of the trunk are taken of representative cases at different ages, ranging from twenty-five to sixty-three years, showing the improvement made in the lines of chest and abdomen, greater erectness of carriage, greater depth of chest, higher breast-bone. It is worthy of notice that some of these improvements can be made even in those who are beyond fifty years of age or are suffering from serious infirmities. In a considerable number of persons improvement in the condition and action of the heart has been noticed. By massage and medical gymnastics great benefit has been conferred upon a considerable number of sprained or stiffened joints and weakened limbs.

MICHIGAN.—*Eastern Michigan Asylum, Pontiac.*—The curriculum in the training school for attendants was altered at the commencement of the year's work (September), so that the instruction is offered in a graded course of two years' extent. Instruction to the junior class is in the form of lectures, following closely the order and substance of the chapters in Wise's text-book, supplemented with whatever additional matter may seem proper to the instructors. In addition to the text-book, each member of the class is provided with printed syllabuses of the lectures. In the senior year reliance is still placed upon the text-books, but the order and substance of the lectures vary from them to a greater extent than in the junior year. Practical instruction in the preparation of food for the sick is given to the women of the senior class during the winter months. It is designed to give members of the senior class clinical demonstrations on the wards of subjects taught. Members of the senior class also attend surgical operations by sections, and receive instruction in the details and technique of the operations. A circulating library of all recently published text-books on nursing and allied subjects is maintained for members of the school and graduate attendants.

An electric lighting and power plant has just been installed. The generating sets are in duplicate. The dynamos, of Siemens & Halske manufacture, are each direct connected to a Russell 4-valve engine. The

generating sets are each of 100 K. W. capacity, driven at a speed of 200 revolutions per minute. The lamps in the building are operated at 110 volts, and the wiring, which is all concealed, has been planned for a possible 2000 lights. Electric motors replace steam power in the shops, laundry, granary, silo and kitchen. Exhaust from the engines is utilized during the winter months in the heating of the building.

MISSISSIPPI.—*East Mississippi Insane Asylum.*—The only recent improvement has been the boring of a deep well, capacity 90 gallons per minute, and the erection of a steel tower 90 feet high with 25,000 gallon tank. Since using the congregate dining room, the capacity of the institution has been increased from 250 to 300.

A training school for nurses on a small scale has recently been organized. Dr. J. R. Tackett, who was assistant for three years, resigned in June to engage in practice at Biloxi, Miss. He had charge of most of the yellow fever there during the recent epidemic, and did a great work before he had the fever, from which he recovered slowly.

The Legislature will be asked to erect cheap pavilions for chronic patients, as both asylums are full. The per capita expense for the year has been $123.

NEW JERSEY.—The most important thing in connection with the care of the insane in New Jersey at present is a bill before the Legislature providing for certain changes to be made concerning the admission of patients. If the bill passes, all persons, no difference whether private or county, will require the certificate of two physicians under oath as to the insanity of the individual; also, no person may give a certificate who has not been in actual practice for at least five years, and must not be related, by marriage or consanguinity, to the person alleged to be insane.

—*New Jersey State Hospital at Trenton.*—The new laboratory is rapidly approaching completion. The building contains four rooms: one for microscopy, one for chemical analysis, an autopsy room, and a room for photography and micro-photography.

The census of the hospital is eleven hundred, with an actual capacity of eight hundred. A bill is pending before the Legislature for an appropriation for the erection of an infirmary for the care of the feeble, old, infirm and paralytic, for the purpose of relieving the wards and providing better care for this class of patients.

NEW YORK.—The foremost question in the administration of the State hospitals during the past few months has been the adjustment of food supplies to dietary requirements and the balancing of dietaries. Connected with this question has been the improvement of the dining-room service, both in efficiency and strength of force, with a two-fold view of preventing waste and increasing observation and the contentment and

welfare of patients. A distinct gain in all the purposes has been secured. It is probable that Prof. W. O. Atwater, the food expert for the U. S. Department of Agriculture, will take the dietaries of the State hospitals under consideration and prepare a ration table upon a scientific basis. His report will be of value to all institutions.

Preparations are being completed for the abandonment of Blackwell's Island Department of the Manhattan State Hospital, by the transfer of the 840 patients to accommodations provided at Poughkeepsie, Buffalo, Ogdensburg and Kings Park. The State is under contract to New York City to relinquish both Blackwell's and Hart's islands to the City in 1901. Contracts are about completed for building a hospital ward pavilion on Ward's Island for 500 women patients as receiving wards and for the treatment of acute cases. There will probably be no further extension of buildings on Ward's Island, and future provision will be made at the Central Islip Department on Long Island.

It is estimated that all the insane in the State will have adequate and proper provision by the close of 1899, and that the number in custody will not exceed the certified capacity of the institutions in the absence of the destruction of buildings by fire.

Notwithstanding the increase of population in the State hospitals for the first quarter of the fiscal year ending January 1, 1898, over the corresponding period of the previous year, the aggregate expenditure for maintenance for the former period has been $43,000 less than in 1896. The cost of food supplies for the '97 period is estimated to be 15 per cent in average excess over the '96 period.

There has been a general improvement in ward service, which is largely due to a gradual increase in ratio of attendants, improvement in qualifications through training school methods, and by the lengthened service resulting from the uniform wage schedule which has been in operation for nearly three years. The ratio of day and night attendants to patients in the several departments is as follows: Utica, 1 to 7.6; Willard, 1 to 8.9; Hudson River, 1 to 6.96; Middletown, 1 to 7.6; Buffalo, 1 to 7.7; Binghamton, 1 to 6.7; St. Lawrence, 1 to 6.3; Rochester, 1 to 8.3; Long Island, 1 to 7.8; Manhattan, 1 to 7.8.

Arrangements have been made by the conference of superintendents to purchase standard articles of supplies for all the hospitals in a combined contract under the following provision of the insanity law: "Contracts may be entered into jointly by the representatives of the managers of two or more of the State hospitals for such staple articles of supplies as it may be found feasible by the commission for the hospitals to purchase in bulk under such contracts."

The manufacture of supplies in the hospitals for all the State hospitals has been materially extended. At Utica there has been erected a coffee-roasting and spice-grinding plant, and all the hospitals are now being supplied from it, thus insuring uniform and absolutely pure products at their actual cost. St. Lawrence is to establish a butter-making plant. A soap factory is under construction at Rochester, where all

grades of soap will be manufactured for the hospitals. Several of the hospitals have increased their facilities for the manufacture of boots and shoes and clothing. Quite extensive projects for the increase of vegetable, fruit and farm products are in progress.

—*Willard State Hospital, Willard.*—A somewhat larger proportion of the patients have been employed in the various industries of the hospital, particularly in the matter of out-door employment on the farm and grounds and the manufacture of clothing for the hospital, including foot-wear. In the latter department considerable extension has taken place, and with special machinery allowed by the Commission in Lunacy, it is hoped soon to be able to manufacture all the boots, shoes and slippers used by the patients. Two hospital wards for the acute sick from the general wards of the institution have been opened at the main building, one for women patients and the other for men patients, and these have been arranged to have operating rooms, and a somewhat larger amount of equipment has been provided in the way of instruments, apparatus, etc. A pathological laboratory has been started and is at this date nearly equipped. With the addition of some extra apparatus, this will soon be ready to do all the ordinary work of the hospital, including such bacteriological work as it will be necessary to do, in making cultures from suspected cases, should a disease such as diphtheria again appear. The hospital suffered from this disease quite a good deal during the past year, the trouble appearing in February of '97 and lasting until late in the fall. A large number of cases were found during that time, though only one fatality occurred.

—*Hudson River State Hospital, Poughkeepsie.*—The new north wing which has been building for the past two years has just been opened. The completion of this wing, together with changes in the south wing, affords increased accommodations for 500 patients, thus bringing the capacity of the hospital up to 2000. The new wing, besides adding greatly to the architectural appearance of the main hospital, supplies the great need, which the hospital has heretofore felt, of suitable accommodations for the acute and convalescent cases among the men. The services of both men and women have been rearranged with the idea of providing the best possible treatment for the acute and hospital cases and the most congenial and pleasant surroundings for the convalescent and quiet part of the population. The additions and alterations mentioned render this possible to a greater degree than ever before.

Not the least important feature of the new building is the provision of attendants' quarters on the upper floor where they are away from the noise and anxieties of the wards. A nurses' hall has also been provided on the south side, so that now only enough nurses are required to sleep upon the wards to secure proper care of the patients in case of accident or panic. Night nurses are of course necessary on every ward, and it is this fact which makes the provision for nurses outside of

the wards such a desirable feature of hospital administration. The care of the insane during the day has made rapid strides during the past decade, and proportionate advances must now be made for their care during the night.

Extensive changes, which have been made necessary by the increase in population, are under way in the kitchen and laundry buildings.

Training School for Nurses.—For the thorough training of nurses in the care of the insane a two years' graded course is provided. Lectures are given semi-weekly by the staff, and practical training is carried out upon the wards. Dr. Wise's manual is used in the quizzes, and the lectures are largely based upon it. Entrance examinations are required, and there are also examinations at the end of the junior and senior years. The last examination is conducted by a committee of superintendents of the various State hospitals, thus insuring fairness as well as fitness.

During the last two years lectures have also been given to a class of young women from the city of Poughkeepsie, who are known as "Professional Attendants," their aim being to become sufficiently trained to care for convalescent cases after the services of a trained nurse are no longer necessary, and for chronic cases where a high degree of efficiency in nursing is not required. They are permitted to charge but $5 per week, and it is said that there is a fair demand for their services. They are in no way connected with the hospital, the lectures being given merely to help carry on the project.

Classes in social science from Vassar College also make occasional visits to the wards for the purpose of observation and instruction.

—*St. Lawrence State Hospital, Ogdensburg.*—The new system of blank forms approved at a recent conference of hospital superintendents with the State Commission in Lunacy has been adopted and is now in operation. Much relief from clerical work is anticipated for the staff, thus permitting them to devote more time to their medical and ward duties. Every member of the staff devotes a part of each day to original work in the laboratories.

A new herd of 108 cows has been purchased to take the place of the herd that had to be destroyed on account of tuberculosis.

The farm cottage is nearly completed and we hope to occupy it early in April. Steps are now being taken to install a creamery plant in the milk-house, thereby providing for the manufacture of all the butter for the hospital.

The shoemaking industry has been recently inaugurated, and all the shoes for patients are now made at the institution. A room in the basement of the infirmary has been equipped with the necessary outfit for making rustic work, such as flower boxes, seats and chairs. This has been done at a trifling cost and affords occupation to a number of patients who during the long winter days are without regular employment.

—*Manhattan State Hospital, Ward's Island, New York City.*—On March 7, 1898, the east wing of the main building, comprising three wards, was occupied and accommodates 81 patients. This building was destroyed by fire, March 30, 1897, and though the work of reconstruction was commenced immediately, numerous delays were encountered and nearly a year passed before its completion. The bath-rooms of these new wards are equipped with rain-bath and Gegenstrom apparatus and every necessary convenience, and will add much to the comfort of patients.

The training school is completing the second year of its course and is making good progress, but is much handicapped in the work of organization and instruction because of the frequent changes among the corps of attendants. This is one of the principal causes operating to keep the membership in the school at a low number, and especially is this the case in the senior class, which now contains only ten persons. The junior class has at present a membership of about 75.

Last December 125 patients were transferred to the Willard State Hospital, but this gives practically no relief from overcrowding. The number of admissions per month averages about 61, and the number of discharges about 40.

—*Brooklyn Department, Long Island State Hospital.*—It has been decided to remodel and renovate the annex at a cost of about $25,000. The capacity of the building is 300, and it has a separate heating plant with kitchen and laundry facilities, all of which are at present in bad condition.

Provision has also been made for enlarging the amusement hall. This work is expected to be completed during the coming summer.

A pathological laboratory has been established.

A training school was established two years ago, and the first class will graduate in May. There are twenty candidates for final examination.

—*The Craig Colony, Sonyea.*—The Legislature of 1897 gave the Craig Colony special appropriations as follows: Dormitory buildings, $40,000; administrative building, $30,000; furnishing, $12,000; extension of water and sewerage systems, $5000; six tenement houses, $5000; slaughter-house, $1000; piggery, $1200; hennery, $1200; granary, $2000; blacksmith shop, $1000; two horse stables, $3000; plumbing and heating west group, $5200; plumbing, heating and ventilating hospital building, $5000; nursery, forcing beds, roadways, walks and grading grounds, $2500; for industries, including a two-story brick building, $5000; laundry machinery, $750; general repairs and improvements, including sheds for cattle and sheep, fencing, moving buildings, painting barns and outhouses, increasing storage capacity for coal, improving creek water supply, and increasing spring water supply, $6750. Total, $126,600.

The work under these appropriations is about completed with the exception of the administrative building, which will be ready for occupancy about June 1.

In the development of the colony a persistent effort is being made to develop its industrial features conjointly with the increase in population. Dr. Spratling is of the opinion that no other single factor is capable of doing the average epileptic so much good as systematic employment, and to promote this idea he is endeavoring as far as possible to employ industrial teachers instead of ordinary nurses or attendants to care for patients.

The Peterson Hospital for twenty-six acute medical and surgical cases was recently opened. As a part of the hospital is an out-door department. Patients go daily to this department for examination and consultation. An operating room, thoroughly equipped and modern in every respect, is a feature of this building. It has also special provision for work in micro-photography. A laboratory building is in process of construction. A training school for nurses has been organized and is in successful operation. The class organized with twenty members.

OHIO.—*Longview Hospital, Carthage.*—The most important improvement of the year has been the new building for employees, which was occupied on the 21st of October, 1897. This building contains a tailor shop 40x50 feet, twenty-three commodious rooms for female employees, and a dining-room 40x50 feet, all finished in yellow pine. The floors are deadened with two inches of cement; the partitions are of iron and cement; the stairways are of iron, making the entire building vermin-proof and as near fire-proof as possible. The dining-room is nicely fitted out with new tables, linens, and table furnishings complete. This room affords a bright contrast to the dismal quarters in the basement formerly used as dining-rooms.

PENNSYLVANIA.—The change of policy in the care of the insane in Pennsylvania, by which the State offers to all counties or cities the sum of one dollar and fifty cents per week for each patient supported by the county or city in their local insane hospital or asylum (or almshouse), will be watched with keen interest by all those who have believed that the insane are as truly the wards of the State as any other class of dependents. The labors and responsibilities of the State Committee of Lunacy will be greatly increased, and as at present organized, with but one imperfectly salaried official, the proper and needed supervision and watchful care of these local institutions cannot be accomplished.

—*The late Dr. Kirkbride.*—From the *Public Ledger* the following account of the presentation of Dr. Kirkbride's portrait to the College of Physicians of Philadelphia is extracted:

The presentation address was made by Dr. John B. Chapin. The address was a valuable addition to the history of medical progress during the last half century and showed the very important part taken by the subject of the sketch in that progress. When, on its erection in 1840, Dr. Kirkbride was placed in charge of the new hospital in West Phila-

delphia, the proper principles regulating the care and treatment of the insane were not generally recognized or understood. From the death of Rush to the time of Kirkbride little had come down of the medical care of the insane in the city or State. It was a common spectacle to see insane men chained to the buttonwood trees about the almshouse of the old city. With the opening of the new hospital Dr. Kirkbride's annual reports to the Board of Managers were published; and no similar publication aroused so much attention, had such far-reaching results or did as much to awaken public sympathy. So interwoven were his thoughts and actions with the hospital service that its published reports furnish material from which the record of his life must be drawn.

He boldly advocated the abolition of mechanical restraint, except in extreme cases. The wards were made attractive, the grounds beautified, and occupation, diversion and amusements were encouraged. Nurses and attendants were trained. Dr. Kirkbride laid the broad foundations of a scheme for humanity in the care and treatment of the insane which is destined to endure and flourish long after the generation in which he lived shall have passed away.

In accepting the portrait, the president, Dr. Da Costa, said it was a great pleasure to receive it within the same year that the portraits of other distinguished members were placed upon the walls. The great leader in clinical medicine, Dr. W. W. Gerhard, came to the college last year, and now there was added the pioneer of another branch of great importance to the community, where in every respect his name has become so thoroughly identified with it. The portrait, which, he said, was admirable, would remain, and always prove how worth has been valued by the college, and would be an incentive to every one to make efforts alike for the college and for the profession.

—*State Asylum for the Chronic Insane, Wernersville.*—Many improvements have been made during the year which were necessary or expedient. The barn and shop buildings have been wired for electric light; local telephones, connecting the Superintendent's office with various parts of the house, have been installed; two large ovens, of the Duhrkop pattern, have been built, and a well drilled and a thoroughly organized fire department, with a system of steam whistle signals, is ready for action at any time.

The old boiler house has been changed and fitted up for a store room, and steam connections to the day building have been changed and relaid in such a way as to result in a great saving of steam and better service. Many yards of rough stone wall have been built and one large new bridge has taken the place of an old one. Many improvements have been made in the water supply, the most notable of which is the construction of a large sand and gravel filter, which is just completed. This filter was constructed at a trifling cost, with the patients' labor, and will prove of great benefit in purifying the water. Other changes have been made in the storage reservoir and at the intake pipes.

The employment of the patients has not varied during the present year, and much work has been done that was rendered necessary by the opening of a new place.

By constant interchange with the State hospitals and very careful selection on the part of the Committee on Lunacy the class of patients now in the house is much better than at any former time.

The inside work has continued and the sewing and repairing rooms, hat and mat shop, and laundry have employed a great many women patients.

During the present year four hundred and thirty-one dresses and one thousand six hundred and forty-three working shirts have been made. This represents much more work than any previous year and is more than half the product of the same shop from July, 1894, to September 30, 1896. Seven thousand five hundred and eleven other articles have been made, being more than half the product of the two years between July, 1894, and September 30, 1896.

Last year there was a total of one thousand one hundred pillow cases, this year two thousand four hundred and forty-nine. Last year's total of working shirts was one thousand two hundred and sixty-nine, this year one thousand six hundred and forty-three.

The hat and mat shop shows even more gratifying results, for the reason that nearly twice the number of articles have been made. The total for last year was one thousand one hundred and fifteen, this year two thousand one hundred and thirty-six. The work in this shop has been enlarged to a considerable extent and a great amount of drawn-work and hemstitching has been done. The mending room has been more than ever a saving to the State. Among the four hundred thousand articles sorted during the year, nineteen thousand nine hundred and forty pairs of socks have been mended.

The laundry averages nearly five hundred thousand pieces each year.

A great many have been engaged in farm and garden work and the product of these departments shows gratifying results.

One hundred and six thousand four hundred and sixty-one cubic feet of stone have been placed in the walks and roads, and the excavation for the same has necessitated the removal of one hundred and forty-three thousand eight hundred and sixty-one cubic feet of earth. On one road twenty thousand seven hundred and thirty-six cubic feet of earth fill has been made.

The changes in the stream have made it necessary to build retaining walls in many places, and one thousand one hundred and ninety-two cubic feet of dry wall have been constructed entirely by patient labor.

In the rear of the male wards the contour of the grounds was such that to successfully turn the surface water away from the building, a great amount of earth filling was necessary. In this one location ninety-six thousand four hundred and sixteen cubic feet of earth were required. In addition to this other grading, terracing, sodding and sowing have been done and the usual work rendered necessary in caring for a large lawn.

During the present year there has been a total of eighty thousand two hundred and twenty-six days' work performed by the men, and fifty-five thousand eight hundred and fourteen by the women patients, which gives a grand total of one hundred and thirty-six thousand and forty, or more than the total amount of work done since the "Company" system was adopted in September, 1894.

—*Philadelphia Hospital, Philadelphia.*—The increase of insane at the Philadelphia Hospital (Blockley) during the past ten years has crowded this institution far beyond its facilities. To make room for the increasing population, the Bureau of Charities have completed two large modernly constructed wards on the dormitory plan, each with a bed capacity for seventy-five chronic patients. Two additional wards of the same size and style will be added during the present year, giving this hospital room for fourteen hundred patients. The present population is 1304.

The increase of patients in this hospital during the past year is shown by the following table:

Population, January 1, 1888	539
Patients admitted in 1888	394
" " " 1889	306
" " " 1890	283
" " " 1891	278
" " " 1892	497
" " " 1893	466
" " " 1894	479
" " " 1895	522
" " " 1896	591
" " " 1897	592

The bathing facilities at the insane department have been increased and improved by the addition of the rain-bath system. A bath house attached to the men's wards, which is accessible from all the wards without going in the open air, thoroughly equipped, enables the entire male population to be thoroughly bathed each day without in any way interfering with the internal routine of the house and with a saving of labor and steam. A marked improvement in the health and vigor of the patients is already noticeable. It is proposed to equip the women's wards in the same manner during the present year.

The insane department is now fully equipped with electric lights both inside and out.

—*The Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne.*—At the end of the second year there were twenty patients remaining, twenty-nine having been treated during the year. The results of treatment have been gratifying, all patients, without exception, having improved in general health, and their convulsions having become either fewer in number or much lessened in intensity.

The dispensary has been open daily, and the attendance upon it has increased steadily.

TENNESSEE.—*Lyon's View, Knoxville.*—Dr. Campbell writes that there will be erected this season a pavilion or detached building to accommodate one hundred patients. This structure will present some new features in hospital construction, a description of which is promised by Dr. Campbell for a later issue of the Summary.

VIRGINIA.—The Legislature which has just adjourned did not make a record for liberality towards the State institutions. "Economy, retrenchment and reform" seemed so important to the majority that no idea beyond that of "reducing expenses of the government" could be entertained. Notwithstanding the persistent and energetic efforts of the superintendents and other friends of the insane, the appropriation for every hospital except the Central was cut down. The previous annual appropriation of $295,000 for all four of the hospitals, with an insane population of about 2700 to be cared for, was reduced to $277,000, a so-called "saving of $18,000 a year."

The superintendents at once stopped receiving patients into the hospitals, for the reason the reduced appropriations were not sufficient to meet the current expenses of the hospitals with their present number of patients. The number in the hospitals will be reduced, while the number in the jails will increase. Two months ago there were no insane in any of the jails or poorhouses of the State. All the insane, practically, were being cared for in the State hospitals.

No money was appropriated for additions or permanent improvements of any description.

A bill fixing and at the same time reducing the salaries of nearly all the hospital officers was passed. Heretofore the Boards of the respective institutions fixed the compensation of the various officers.

The laws regulating the commitment of the insane in this State are defective in many particulars. The superintendents prepared a bill revising these laws, but the Legislature could not be moved to appreciate the necessity or advisability of the proposed changes, apparently believing the laws enacted a century ago, more or less, were quite good enough for this day and generation!

On these matters, viz., proper care for all the insane of the State and revision of commitment laws, and some other matters bearing on the insane and our hospitals, the Legislature seemed to be lacking in a proper understanding.

The State Epileptic Commission submitted to the Legislature its report, treating fully of the question of State provision for these dependants. A colony, modeled after the Craig Colony in New York State, was recommended. The Commission also recommended that all the white insane epileptics be cared for in a separate building at one of the State hospitals. At the Central Hospital a separate building was constructed

last year and is now occupied exclusively by insane female epileptics (negroes). The Epileptic Commission, as constituted by the Legislature two years ago, was reappointed and instructed to submit to the next Legislature detailed plans, estimates and other more or less definite information regarding the proposed epileptic colony.

—*Central State Hospital, Petersburg.*—The building for women epileptics has been completed and equipped. All of the furniture for this building, except bedsteads, was made in the hospital shops at comparatively small expense. Numerous minor repairs have been made during the year.

QUEBEC.—*Protestant Hospital for the Insane, Montreal.*—A new electric light plant has been installed and is giving good satisfaction.

An additional underground water tank, with a capacity of 100,000 gallons, was constructed for fire purposes. It is connected by a supply pipe with the aqueduct which supplies water to the city of Montreal, and has been so placed that a steam fire-engine can pump directly from it.

Of the sixteen nurses enrolled for the training course of 1896-97, nine succeeded in passing their primary examination with a class average of 71.3 per cent. Four left the service before the close of the session, and three failed to secure the requisite number of marks, so were, therefore, relegated to the junior class.

In view of the prevalence of small-pox in the city during August and September, it was deemed advisable as a matter of precaution to vaccinate all the patients and employees. Of three hundred and sixty-five persons operated upon, 81 per cent of the females and 70 per cent of the males "took." All but twelve had been previously vaccinated at some period of their lives and showed good marks. In one successful case the patient had previously had an attack of true small-pox in infancy and was badly pitted therefrom.

Appointments, Resignations, Etc.

ARTHUR, DR. DANIEL H., formerly Second Assistant Physician at the Middletown State Homœopathic Hospital, promoted to the Superintendency of the Collins State Homœopathic Hospital, Collins, N. Y.

BARKER, DR. W. C., resigned as Second Assistant Physician at the Central State Hospital, Petersburg, Va.

BENOIT, DR. MARIE LOUISE, appointed Medical Interne at the Craig Colony, Sonyea, N. Y.

BOLTON, DR. JAMES R., appointed First Assistant Physician at the Retreat for the Insane, Hartford, Conn.

BONDURANT, DR. E. D., resigned as Assistant Medical Superintendent of the Alabama Bryce Insane Hospital, Tuscaloosa, Ala.

CHAPIN, DR. C. B., appointed Assistant Physician at the Eastern Michigan Asylum, Pontiac, Mich.

COLBURN, DR. HARRY H., appointed Second Assistant Physician at the Danvers Lunatic Hospital, Danvers, Mass.

COON, DR. WILLIAM H., appointed Medical Interne at the Northampton Lunatic Hospital, Northampton, Mass.

CROSBY, DR. J. HOWARD, formerly Interne at the New Jersey State Hospital at Morris Plains, appointed Junior Assistant Physician at the Manhattan State Hospital, Ward's Island, New York City.

DARNALL, DR. R. F., formerly Assistant Physician at the Danvers Lunatic Hospital, Danvers, Mass., appointed Assistant Physician at the Northern Indiana Hospital for the Insane, Logansport, Ind.

DOBSON, DR. T. L., appointed Assistant Physician at the East Mississippi Insane Asylum, Meridian, Miss.

DOWN, DR. E. A., resigned as First Assistant Physician at the Retreat for the Insane, Hartford, Conn.

EDGERLY, DR. J. F., appointed to the Superintendency of the Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne, Pa.

EVARTS, DR. HERMAN E., promoted to the Superintendency of the Long Island State Hospital, King's Park, N. Y.

EWING, DR. W. BROWN, resigned the Superintendency of the State Asylum for the Chronic Insane of Pennsylvania, Wernersville, Pa.

FISH, DR. J. E., appointed Third Assistant Physician at the Taunton Lunatic Hospital, Taunton, Mass.

GARLICK, DR. J. H., formerly of the Eastern State Hospital, appointed Second Assistant Physician at the Central State Hospital, Petersburg, Va.

GOODFELLOW, DR. E. H., resigned as Assistant Physician at the Eastern Michigan Asylum, Pontiac, Mich.

GOUX, DR. L. J., resigned as Assistant Physician at the Eastern Michigan Asylum, Pontiac, Mich.

HESSLER, DR. ROBERT, formerly Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, appointed Pathologist at the Central Hospital for Insane, Indianapolis, Ind.

HILL, DR. SAMUEL S., formerly First Assistant Physician, appointed Acting Superintendent of the State Asylum for the Chronic Insane of Pennsylvania, Wernersville, Pa.

HOLLEY, DR. EWING, appointed Medical Interne at the Manhattan State Hospital, New York City.

HOLMES, DR. C. M., promoted to be First Assistant Physician at the Northampton Lunatic Hospital, Northampton, Mass.

HOLT, DR. JOHN M., appointed Junior Assistant Physician at the Manhattan State Hospital, Ward's Island, New York City.

HOUSE, DR. WILLIAM, resigned as Assistant Physician at the Manhattan State Hospital, Ward's Island, New York City.

HOUSTON, DR. J. A., promoted to the Superintendency of the Northampton Lunatic Hospital, Northampton, Mass.

HUTCHINSON, DR. W. G., appointed Assistant Physician at the Eastern Michigan Asylum, Pontiac, Mich.

KLEIN, DR. EDWARD G., appointed Medical Interne at the Willard State Hospital, Willard, N. Y.

LOVELACE, DR. ELIZABETH N., appointed Assistant Physician at the Philadelphia Hospital, Philadelphia, Pa.

MACALLISTER, DR. ELEANOR, appointed Woman Physician at the Manhattan State Hospital, New York City.

MACGREGOR, DR. W. W., appointed Superintendent of the Southwestern Insane Asylum, San Antonio, Texas.

MANCHESTER, DR. G. H., resigned as Assistant Superintendent at the Protestant Hospital for the Insane, Montreal, Quebec.

MARSHALL, DR. DAVID T., appointed Medical Interne at the Manhattan State Hospital, New York City.

MELLEN, DR. SAMUEL F., resigned as Assistant Physician at the Willard State Hospital, Willard, N. Y.

MUIR, DR. A. PARKER, appointed Junior Assistant Physician at the Manhattan State Hospital, Ward's Island, New York City.

NIMS, DR. E. B., resigned the Superintendency of the Northampton Lunatic Hospital, Northampton, Mass.

NORRIS, DR. CHAS. E., appointed Junior Assistant Physician at the Manhattan State Hospital, Central Islip, N. Y.

O'HANLON, DR. GEORGE, resigned as Assistant Physician at the Willard State Hospital, Willard, N. Y.

PARKER, DR. FLAVIUS, formerly Second Assistant Physician at the Rochester State Hospital, Rochester, N. Y., promoted to be First Assistant Physician at the Long Island State Hospital, King's Park, N. Y.

PARSONS, DR. PAYN B., appointed Medical Interne at the Northampton Lunatic Hospital, Northampton, Mass.

PIERCE, DR. APPLETON H., resigned as Assistant Physician at the Worcester Lunatic Hospital, Worcester, Mass.

PITTIS, DR. GODFREY, appointed Medical Interne at the Willard State Hospital, Willard, N. Y.

SPRAGUE, DR. GEORGE P., promoted to be First Assistant Physician at the Danvers Lunatic Hospital, Danvers, Mass.

STEEVES, DR. JAMES A. E., resigned as Assistant Superintendent of the Provincial Lunatic Asylum, St. John, N. B.

TACKETT, DR. J. R., resigned as Assistant Physician at the East Mississippi Insane Asylum, Meridian, Miss.

TAYLOR, DR. W. E., appointed Superintendent of the Illinois Western Hospital for the Insane, Watertown, Ill.

TRIPP, DR. GEORGE A., appointed Assistant Physician at the Worcester Lunatic Hospital, Worcester, Mass.

WARD, DR. FREDERICK S., formerly Assistant Physician, appointed Pathologist at the Taunton Lunatic Hospital, Taunton, Mass.

WILTON, DR. TERTIA C., appointed Assistant Physician at the Taunton Lunatic Hospital, Taunton, Mass.

Books and Pamphlets Received

A Manual of Jurisprudence. By Alfred Swaine Taylor, M. D., Lond., F. R. S. Revised and edited by Thomas Stevenson, M. D., Lond., F. R. C. P. Twelfth American edited with citations and additions from the twelfth English edition, by Clark Bell, Esq., LL. D. 8vo, 834 pages. Lea Brothers & Co., Phila.

A Practical Treatise on Sexual Diseases of the Male and Female. By Robert W. Taylor, M. D. 8vo, 448 pages. Lea Brothers & Co., Phila.

Addresses Delivered at the Opening of the Walter Garrett Memorial Building of the Pennsylvania Hospital, April 23, 1897. 47 pages, 4to.

The Insane in Private Dwellings and Licensed Houses. By J. F. Sutherland, M. D., F. R. S. E. 2d edition. 1897. 8vo, 60 pages. E. and S. Livingstone, Edinburgh.

The Charities Record: A journal of the progress of Baltimore's charities. Published by the Charity Organization Society. Vol. iii, No. 2. 4to. 1897.

Training Schools for Nurses in Hospitals for the Insane. By P. M. Wise, M. D. 8vo, 11 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

General Questions of Auto-Infection. By C. K. Clarke, M. D. 8vo, 8 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

Notes on the Epileptic Aura, with Report of Some Rare Forms. By L. Pierce Clark, M. D. 8vo, 6 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

The Psycho-motor Problem. By Herbert Nichols. 8vo, 22 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

Clinical Aspects of Auto-Intoxication. By Arthur W. Hurd, M. D. 8vo, 13 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

Advances in Neurology and Their Relation to Psychiatry. By B. Sachs, M. D. 8vo, 19 pages. Reprinted from American Journal of Insanity, vol. liv, No. 1, 1897.

"The Relation of Insanity to the State." Paper read by Dr. James Russell. 8vo, 1897, 16 pages. Times Printing Co., Hamilton.

"The After Effects of Surgical Procedure on the Generative Organs of Women for the Relief of Insanity." Paper read by Dr. James Russell. 8vo, 16 pages, 1897. Times Printing Co., Hamilton.

The Nature of the Leucocytosis Produced by Nucleinic Acid; A Preliminary Experimental Study. Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-eighth Annual Meeting of the American Medical Association, Phila., Pa., June 1-4, 1897. By Delano Ames, A. B., M. D., and A. A. Huntley, M. D. 12mo, 1897, 19 pages. Reprinted from The Journal of the American Medical Association, September 4, 1897.

Psychological Medicine (1837-1897). By Sir James Crichton-Browne, M. D., LL. D., F. R. S., Lord Chancellor's Visitor in Lunacy; and A. R. Urquhart, M. D., Physician-Superintendent, James Murray's Royal Asylum, Perth. Reprinted from the Practitioner for June, 1897.

Seventieth Annual Report of James Murray's Royal Asylum, Perth, 1897.

Excelsior, being the quarterly magazine of James Murray's Royal Asylum, Perth, July, 1897.

Circumcision, with a description of a pair of circumcision forceps. By A. L. Hodgdon, M. D., Dispensary Physician to the Department of Nervous Diseases, College of Physicians and Surgeons, Baltimore. Reprinted from Maryland Medical Journal, July 17, 1897.

The Hemiplegic State and its Treatment. By Archibald Church, M. D., Professor of Neurology, Chicago Policlinic, etc. Reprinted from the Chicago Medical Recorder, June, 1897.

Cheyne-Stokes Respiration Phenomena. By N. S. Davis, Jr., M. D., Chicago. Reprinted from the Journal of the American Medical Association, July 24, 1897.

The Cardio-Vascular and Renal Relations and Manifestations of Gout. By N. S. Davis, Jr., M. D. Reprinted from the Journal of the American Medical Association, 1897.

Is there ever a Serous Iritis without an Involvement of the Ciliary Body or Choroid, or Both? By William Cheatham, M. D. Reprinted from Ophthalmic Record, 1897.

Insanity as a Neurosis. Medical, Scientific and Educational Work at the Illinois Eastern Hospital for the Insane, under the superintendency of Clarke Gapen, M. D., LL. B. Reprinted from the Tenth Biennial Report of the Hospital.

Eighty-third Annual Report of the Trustees of the Massachusetts General Hospital. Including the General Hospital in Boston, the McLean Hospital and the Convalescent Home at Waverley, 1896. Boston, The Barta Press, 1897.

The Royal Victoria Hospital, Montreal. Third Annual Report for the year ending 31st December, 1896. Montreal: Morton, Phillips & Co.

Urate Disease. Paper read before the Franklin County, Maine, Medical Association, September 14, 1897. By T. D. Myers, M. D., of Phila., Pa. 4to, 8 pages. Reprinted from the Journal of Medicine and Science.

A Case of Acromegaly: Autopsy: Skeleton. Part II. Pathology and Etiology. By O. T. Osborne, M. D. 4to, 15 pages. Reprinted from Yale Medical Journal, December, 1897.

A Case of Acromegaly: Autopsy: Skeleton. By O. T. Osborne, M. D. 4to, 16 pages. Reprinted from the Transactions of the Association of American Physicians, 1897.

A Case of Acromegaly. By O. T. Osborne, M. D., 8vo, 8 pages. Reprinted from the American Journal of the Medical Sciences, June, 1892.

Morbid Besetments or Obsessions. By C. B. Burr, M. D., Flint, Michigan. 8vo, 6 pages. Reprinted from the Physician and Surgeon, Detroit and Ann Arbor.

Autogenous Poisoning in Disease. By E. D. Bondurant, M. D., Mobile, Ala. 8vo, 12 pages. Reprinted from November, 1897, number of the New Orleans Medical and Surgical Journal.

Feeble-Minded Children in the Public Schools. By Will S. Monroe. 8vo, 12 pages. [An address read before the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons at Fort Wayne, Indiana, May, 1894, and reprinted from the Proceedings of the Association.] Westfield, Mass., 1897.

Difficulties in Determining the Causes of Coma. By J. T. Eskridge, M. D., Denver, Colo. 8vo, 19 pages. Reprint from The Annual Report of the Colorado State Medical Society.

Angina Pectoris: its Relation to Dilatation of the Heart. By J. H. Musser, M. D. 8vo, 9 pages. Reprinted from the American Journal of the Medical Sciences, September, 1897.

The Prognosis and Duration of Attacks of Mental Disease. By Henry R. Stedman, M. D., Boston. 8vo, 12 pages. Reprinted from the Boston Medical and Surgical Journal, June 10, 1897.

The Public Care of the Insane in Massachusetts. By J. L. Hildreth, M. D. 8vo, 43 pages. An address delivered before the Middlesex South District Medical Society at its annual meeting, April 21, 1897. Printed at the Riverside Press, Cambridge, 1897.

The Early Diagnosis of Progressive Paresis. By Dr. Hoche, Strassburg. 8vo, 31 pages. Reprint from Alienist and Neurologist, January, 1898.

Syphilis of the Central Nervous System. By Sydney Kuh, M. D. 8vo, 28 pages. Reprint from Alienist and Neurologist, October, 1897.

What Constitutes an Insane Criminal, and What Status does he Occupy? By H. E. Allison, M. D. 8vo, 14 pages. Reprinted from the Albany Medical Annals of December, 1897.

Method of Securing Health of Insane Convicts. By H. E. Allison, M. D. 8vo, 12 pages. Reprinted from the Journal of Social Science for December, 1897.

The Formation of a National Association or Society for the Study of Epilepsy and the Care and Treatment of Epileptics. Opinions and Suggestions bearing on its Formation and Purposes. By William P. Spratling, M. D., Sonyea, N. Y. 8vo, 16 pages.

Mr. Enoch Pratt's Bequest to the Sheppard Asylum. 1898. 8vo, 10 pages.

Health Department, Criminal Court Building, New York City. Preventive Medicine in the City of New York. The Address in Public

Medicine delivered at the 65th Annual Meeting of the British Medical Association, in Montreal, Canada, September, 1897. By Hermann M. Biggs, M. D. 8vo, 30 pages.

Headaches from Nasal Causes. By Sargent F. Snow, M. D. 8vo, 11 pages. Reprinted from the Medical News, July 10, 1897.

Report of a Case of Intradural Spinal Tumor extending through the Foramen Magnum, compressing the Extreme Upper Portion of the Cord, and almost completely Destroying it at the Third Cervical Segment. By J. T. Eskridge, M. D., of Denver, Col. 8vo, 17 pages. Reprinted from the Medical News, September 25, 1897.

Two Cases of Homicidal, Amnesic, Transitory Frenzy. By Charles P. Bancroft, M. D. 16mo, 24 pages. Reprinted from the Boston Medical and Surgical Journal of October 14, 1897.

The Development of the Insane Asylum. By Helen W. Bissell, M. D., St. Paul. 24mo, 11 pages. Reprinted from Northwestern Lancet.

The Medical Service of Hospitals. By Henry M. Hurd, M. D. 8vo, 5 pages. Reprinted from the Albany Medical Annals of February, 1898.

Massage, Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham, M. D., of Boston, Mass. 8vo, 12 pages. Reprinted from the American Journal of the Medical Sciences, November, 1896.

A Compendium of Insanity. By John B. Chapin, M. D., 1898. 12mo, 234 pages. W. B. Saunders, Philadelphia.

INDEX

Abstracts and Extracts, 129, 462.
Andriezen, W. L., The pathogenesis of epileptic idiocy and epileptic imbecility, 131.
Bramwell, B., Aphasia and will-making, 132.
Cabitta, C., The toxicity of the perspiration in epileptics, 134.
Cowen, T. P., Maniacal chorea in a male, 130.
Diabetes and general paralysis, 462.
Diabetes, mental symptoms of, 470.
Dotards in French asylums, 130.
Drummond, D., Neurotic symptoms of uricacidæmia in the young, 129.
Female inebriety, 130.
Frenzy, homicidal, amnesic, transitory, 463.
Imprisonment and insanity, 469.
Katatonia, 471.
Maniacal chorea in a male, 130.
Melancholia, recoveries from, following removal of interstitial fibromata from the cervix uteri, 462.
Mental diseases, the relation of to general medicine, 465.
Ottolanghi and Sacerdotti, The alterations of the nerve elements in experimental uræmia, 133.
Paralysis, congenital facial, 462.
Paresis, the etiology of, 467.
Paresis, the prodromes of, 467.
Paresis, the so-called external degenerative stigmata of, 468.
Pellegrini, Urinary toxicity in the insane, 134.
Perspiration in epileptics, the toxicity of, 134.
Peterson and Langdon, Katatonia, 471.
Religious insanity, 463.
Sacerdotti and Ottolanghi, The alterations of the nerve elements in experimental uræmia, 133.
Allen, G., death of, 493.
Allison, H. E., M. D., Medico-legal notes, 297, 435, 612.
American Medico-Psychological Association, Fifty-third annual meeting, 99.
Appeal from the Rush Memorial Committee, 494.
Appointments, Resignations, etc., 332, 686.
Auto-infection, general questions of, 37.
Auto-intoxication, clinical aspects of, 45.

Berkley, H. J., Present methods of preparation of the nervous system, 333.
—— Myxœdema-like conditions in the negro, 415, with plates I and II.
Bibliography of Psychological Literature, 149, 301, 480, 658.
Blandford, George Fielding, a sketch of, 127. See frontispiece.
Blumer, G. A., The medical and material aspects of industrial employment for the insane, 157.
Book Reviews, 135, 259, 472, 643.
Bramwell, B., Atlas of clinical medicine, 136.
Clark, A. C., Clinical manual of mental diseases, 265.
Kellogg, T. H., A text-book on mental diseases, for the use of students and practitioners of medicine, 222.
Mitchell, Sir A., The insane poor in private dwellings in Massachusetts, 270.
Parish, E., Hallucinations and illusions, 472.
Plaxton, J. W., Jamaica, annual report on the lunatic asylum, 644.
Preston, G. J., Hysteria and certain allied conditions, their nature and treatment, with special reference to the application of the rest cure, etc., 259.
Report for 1895-96 of the asylums for the insane and feeble-minded of Lower Austria, 135.
Ribot, Th., The psychology of the emotions, 266.
Scripture, E. W., The new psychology, 474.
Sidis, B., The psychology of suggestion, 643.
Taylor, A. S., A manual of medical jurisprudence, 476.
Taylor, R. W., Sexual disorders of the male and female, 475.
Weir, Jr., J., The psychical correlation of religious emotion and sexual desire, 643.
Wenge, W., Zeitschrift für criminal-anthropologie, gefängniswissenschaft und prostitutionswesen, 645.
Books and Pamphlets Received, 688.
Brain, higher centres, the development of, 167.
British Medical Association at Montreal, 237.
Bucknill, Sir John Charles, 607.

Changes in the nerve cells of the cortex, in a case of acute delirium and a case of delirium tremens, 589.
Channing, W., Medical expert testimony in the Kelley murder trial, 385, with plates I-III.
Clark, L. P., Notes upon the epileptic aura, with report of some rare forms, 93.
Clarke, C. K., General questions of auto-infection, 37.
Classification and tabulation of cases, 537.
Correspondence:
Boarding out the insane in Massachusetts, Letters of A. R. Moulton, M. D., 478, 650; Letter of F. B. Sanborn, 650.

Compensation of trained nurses in New York State hospitals, Letter of P. M. Wise, M. D., 478.
Increase of insanity in Massachusetts, Letter of C. E. Woodbury, M. D., 653.
Rush monument committee, 653.
Cortex and cerebro-spinal fluid in forty-seven cases of insanity, a preliminary report upon the bacteriological examination of the, 213.

Dementia, progressive, preliminary report, clinical and pathological, of a case of, 201, with plates I-X.

Epileptic aura, notes upon the, with report of some rare forms, 93.

Half-Yearly Summary:
Arkansas, 310.
California, 310.
Colorado, 311.
District of Columbia, 665.
Georgia, 311.
Idaho, 312.
Illinois, 668.
Indiana, 668.
Iowa, 669.
Maine, 313.
Maryland, 314, 669.
Massachusetts, 315, 669.
Michigan, 317, 674.
Minnesota, 319.
Mississippi, 675.
New Jersey, 319, 675.
New York, 322, 675.
North Carolina, 325.
Ohio, 680.
Pennsylvania, 325, 680.
Quebec, 331, 685.
Tennessee, 684.
Virginia, 328, 684.
Wisconsin, 329.
Heredity, a factor in the etiology of insanity, 227.
Hibbard, C. M., A study of the excretion of urea and uric acid in melancholia, etc., 503.
Hoch, A., On changes in the nerve cells of the cortex in a case of acute delirium and a case of delirium tremens, 589.
Hurd, A. W., Clinical aspects of auto-intoxication, 45.

Industrial employment for the insane, the medical and material aspects of, 157.

Jones, W. P., death of, 642.

Kellogg, T. H., The breadth of the psychiatric specialty, 427.
Kelley murder trial, medical expert testimony in the, 385, with plates I-III.

McCorn, W. Alfred, M. D., Melancholia, diagnosis and treatment of (translation), 543.
Medico-Legal Notes, 297, 435, 612.
Commitment of the insane, strict compliance with the law in the, 299.
Feigned insanity, one aspect of, 612.
May a lunatic be sued? 299.
Testimony, expert, 297.

Melancholia, diagnosis and treatment of, 543.
Melancholia, study of excretion of urea and uric acid in, 503.
Meyer, A., Demonstration of various types of changes in the giant cells of paracentral lobule, 221, with plates I-VII.
Mills, C. K., Preliminary report, clinical and pathological, of a case of progressive dementia, 201, with plates I-X.
Moulton, A. R., letter from, 478, 650.
Myxœdema-like conditions in the negro, 415, with plates I and II.

Nervous system, present methods of preparation of the, 333.
Neurology, advances in, and their relation to psychiatry, 1.
Nichols, H., The psycho-motor problem, 59.
—— Psychology and physiology, 181.
Notes and Comment, 137, 273, 439, 618.
After-care movement, 456, 634.
Annual meeting of American Medico-Psychological Association, 632.
Atkins, R., death of, 633.
Beri-Beri at the Richmond asylum, 441.
Boarding-out for the insane, 279.
Bucknill, Sir J. C., death of, 147.
Dotards in hospitals for the insane, 283.
Epilepsy and the epileptic, the associated study of, 624.
Expert testimony, 630.
Feeble-minded, importance of good health to the, 622.
Gates, Prof. E., the discoveries of, 444.
Gynecology and insanity, 293.
Hasheesh, 625.
Home for the insane on Mt. Lebanon, 140.
Howden, J. C., death of, 291.
Intoxication and nervous diseases, 626.
Lunacy proceeding in Pennsylvania, a new, 273.
Luys, J. B., death of, 290.
Medico-Psychological Association, branches of, 291.
Mental nurse to the nursing profession, the relation of the, 439.
Moffit, R. H., death of, 142.
Out-patient departments of mental diseases, 441.
Pathologists in hospitals for the insane, 457.
Political control of hospitals, 143.
Pratt bequest to the Sheppard Asylum, 453, 632.
Private dwellings, the insane in, 281.
Psychiatry and histology, 618.
Psychiatry in America, the progress and promise of, 638.
Quis custodiet ipsos custodes, 459.
Relation of the mental nurse to the nursing profession, 439.
Scottish asylums from a South American point of view, 447.
Staff meetings in hospitals for the insane, 285.

Steeves, J. T., death of, 137.
Study of epilepsy and the epileptic, 624.
Training schools for attendants, 138.
Voluntary patients, admission of, to hospitals for the insane, 144.

Obituary, 490, 642.
Olmstead, J., death of, 490.

Paracentral lobule, demonstration of various types of changes in the giant cells of the, 221, with plates I-VII.
Paton, S., The development of the higher brain centres, 167.
Pharmacology and therapeutics, 250.
Phelps, R. M., An improved classification and tabulation of cases of insanity, 537.
Powell, T. O., A sketch of psychiatry in the Southern States, 21.
Prison medical service, 495.
Proceedings of the Association of Assistant Physicians of Hospitals for the Insane, 431.
Proceedings of the fifty-third annual meeting, 99.
Psychiatric specialty, the breadth of the, 427.
Psychiatry, a sketch of, in the Southern States, 21.
Psychology and physiology, 181.
Psychology, section of, in British Medical Association, 237.
Psycho-motor problem, 59.

Resignations, Appointments, etc., 332, 686.
Rush memorial committee, 494, 653.

Sachs, B., Advances in neurology and their relation to psychiatry, 1.
Sanborn, F. B., letter from, 650.
Savage, G. H., A sketch of George Fielding Blandford, 127.
Schively, M. A., Preliminary report, clinical and pathological, of a case of progressive dementia, 201, with plates I-X.
Seguin, E. C., death of, 642.
State care of the insane, 373.
Stearns, H. P., Heredity a factor in the etiology of insanity, 227.

Therapeutics and pharmacology, section of, in British Medical Association, 250.
Tomlinson, H. A., A preliminary report upon the bacteriological examination of the cortex and cerebro-spinal fluid in forty-seven cases of insanity, 213.
Training schools for nurses in hospitals for the insane, 81. Discussion, 88.

Urea and uric acid in melancholia, 503.

Wey, H. D., Prison medical service, 495.
Wise, P. M., Training schools for nurses in hospitals for the insane, 81.
Discussion, 88.
—— State care of the insane, 373.
Woodbury, C. E., letter from, 653.

Ziehen, Th., The diagnosis and treatment of melancholia, 543.

LIST OF ILLUSTRATIONS

Blandford, G., Fielding, to face title.
Bucknill, Sir John Charles, to face p. 607.
Changes in the nerve cells of the cortex, 606.
Giant cells of paracentral lobule, face p. 226 (Figs. I.-V).
Kelley murder trial, face p. 414 (Figs. I-III).
Myxœdema-like conditions, face p. 424 (Figs. I, II).
Progressive dementia, 205-211 (Figs. I-X).

81.